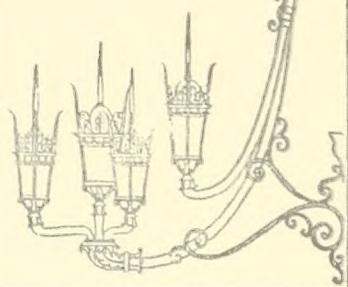


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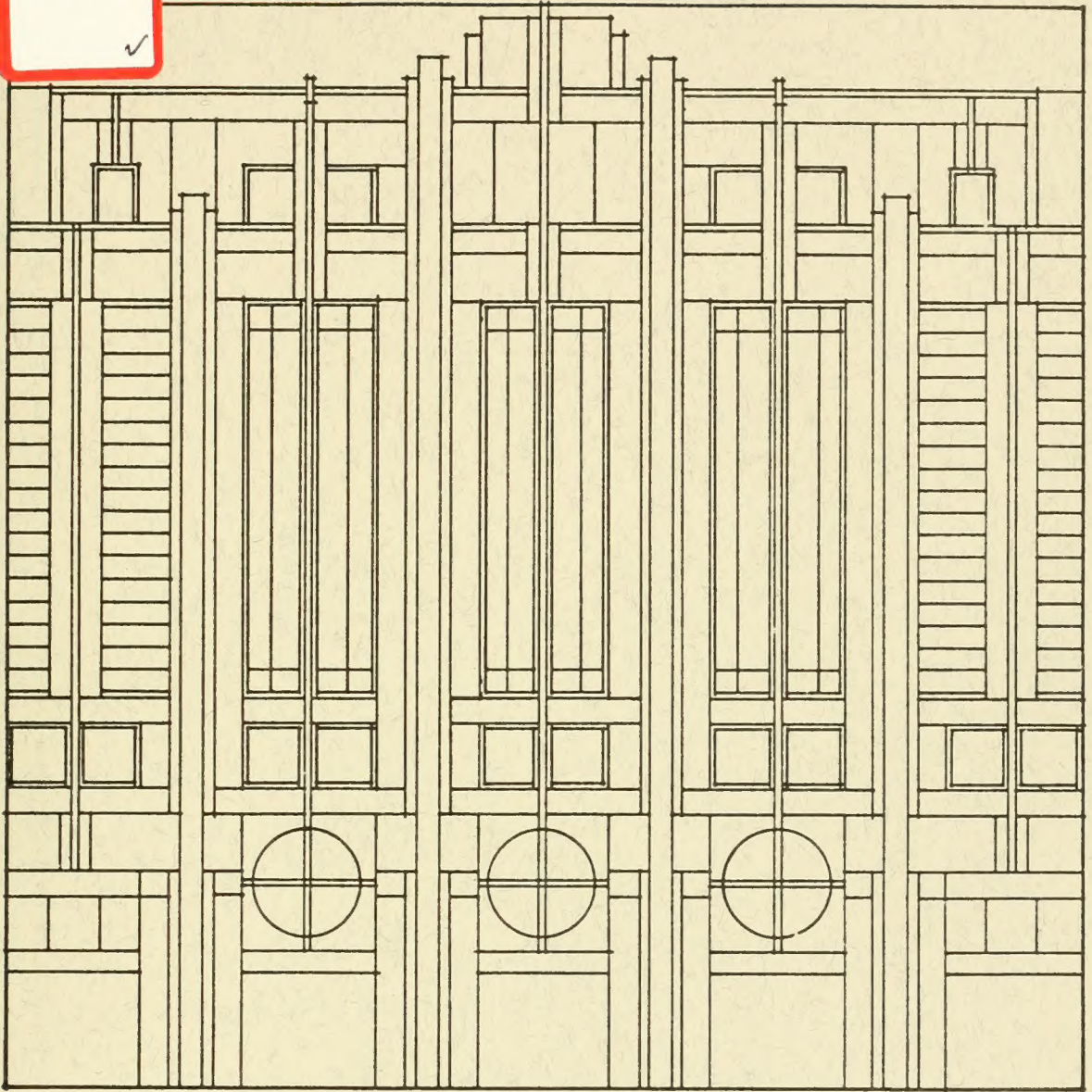
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FORTY FRANKLIN

DRAFT PROJECT & ENVIRONMENTAL IMPACT REPORT EOE 7472

DRAFT PROJECT & ENVIRONMENTAL IMPACT REPORT

FORTY FRANKLIN

EOEA 7472

NOVEMBER 15, 1989

PROPONENT:

Old State Management Corp.
53 State Street
Boston, Massachusetts 02109

ENVIRONMENTAL CONSULTANT:

H. W. Moore Associates, Inc.
112 Shawmut Avenue
Boston, Massachusetts 02118

ARCHITECT:

Crang & Boake / Shepley Bulfinch Richardson and Abbott

CONSTRUCTION CONSULTANT:

Beacon Construction Co., Inc.

STRUCTURAL ENGINEER:

Carruthers & Wallace Ltd.

GEOTECHNICAL ENGINEER:

Haley & Aldrich, Inc.

WIND CONSULTANT:

Technology Integration & Development Group, Inc.

AIR QUALITY & NOISE CONSULTANT:

Jason M. Cortell and Associates, Inc.

LEGAL COUNSEL:

Goodwin Procter & Hoar
Kopelman and Paige, P. C.

INTRODUCTION

This Draft Project and Environmental Impact Report has been prepared to identify and assess anticipated environmental impacts that might result from the construction of Forty Franklin, an office building proposed for land adjacent to, and above, the existing Woolworth garage in Downtown Boston. In addition, the proponent intends to completely reconstruct the facade and arcades of the existing Woolworth Store, as well as re-open Hawley Street to Milk Street.

This Draft Report is being submitted in accordance with the requirements of Article 31 of the Boston Zoning Code, as well as the Massachusetts Environmental Policy Act (MEPA). The three alternative design schemes contained within this Report reflect the results of intensive discussions with staff from the Boston Redevelopment Authority, the design community, public interest groups and abutters.

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I. EXECUTIVE SUMMARY

1.0. PROJECT NAME

Forty Franklin

1.1. Description of Project

Following more than four years of architectural, engineering, and economic studies, Old State Management Corp. is proposing the construction of Forty Franklin. As designed, this project proposes to add office space above the structure which currently houses the F.W. Woolworth store and a parking garage in Downtown Boston. Based upon a feasibility study of three development scenarios, the proponent is seeking approval of the design referred to as "Option A".

Option A consists of the complete reconstruction of the exterior facades and arcades of the existing Woolworth Store/Garage building located at Washington, Franklin, Hawley, and Arch Streets in Boston, MA, together with the construction of a new office building located over the existing garage ramp area between Arch and Hawley Streets. The new office building will be twenty-five stories high above the existing building, and will contain approximately 543,000 gross square feet.

The existing 880 vehicle garage will be modified by closing the entrance and exit from Arch Street, and up to 204 parking spaces will be added. Hawley Street will be reconstructed from Franklin Street to Milk Street and will serve as the only entrance and exit to the garage. A key element of this reconstruction will be the removal of the existing garage ramp, thus providing an unobstructed connection between Franklin and Milk Streets.

Option B, the as-of-right (enhanced) program, provides the addition of 143,000 gross square feet of office space in three floors to be built above the existing building. The parking capacity remains unchanged from the existing condition.

Option C is a design that is in general conformance with the current height and FAR limits for a Planned Development Area on the site. This option consists of an office building addition comprised of a single-story covering the existing building foot print plus an eighteen story office addition above the existing garage ramp area. Total proposed new gross office area is approximately 469,000 square feet and the garage capacity would be increased by approximately 24 parking spaces.

2.0 TYPE OF DOCUMENT/EOEA FILE NUMBER

Draft Project and Environmental Impact Report/EOEA #7472

3.0. APPLICANT INFORMATION

3.1 Property Owner

Frank-King Associates Limited Partnership
c/o Kingston Investors Corp.
430 Park Avenue
New York, N.Y. 10022

3.2 Developer

Old State Management Corp.
Exchange Place
53 State Street
Boston, MA 02109

3.3 Legal Information

The project site contains two parcels totaling 63,920 square feet. One parcel of approximately 58,819 square feet is owned by Frank-King Associates Limited Partnership. The remaining land, a 5,101 square foot parcel fronting on Arch Street, is owned by the Boston Redevelopment Authority.

There are no legal judgements or actions pending concerning this proposed project. In addition, there are no taxes owed on properties owned by the Developer.

3.4 Estimated Commencement/Estimated Completion

As soon as permitted/36 months from start of construction.

4.0 FINANCIAL INFORMATION

Detailed financial information regarding the project will be submitted to the BRA under separate cover.

5.0 PUBLIC BENEFITS

A Public Benefits Package for the Option A development scheme is described in this section. Part II.4.0

contains a more detailed description of the benefits, as well as a comparison of the benefits proposed for Option C. A public benefit package for Option B is not considered economically feasible and is not proposed.

- o Approximately \$2,225,000 in housing linkage funds will be targeted towards the creation of affordable housing in Boston.
- o Approximately 8,000 s.f. of child care space will be provided for area employees and residents.
- o Approximately \$3,100,000 in new real estate property taxes will be generated for the City of Boston.
- o Evening and weekend parking will be made available for patrons of retail and cultural facilities through the extension of the existing garage's hours of operations.
- o The Proponent will comply with the public benefit criteria of Section 38-14 of the Midtown Cultural District zoning by proposing a plan of public benefits, including one of the following: (a) development or contribution to the development of a theater or cultural facility; (b) the rehabilitation or contribution to the rehabilitation of a landmark, historic building, or existing theater; or (c) the provision of affordable housing.
- o A new, mid-block walkway will be built between Arch Street and Hawley Street creating a strong pedestrian connection between the Financial District and Downtown Crossing areas.
- o Hawley Street will be reconnected and rejuvenated, thus transforming its present unappealing character.
- o The arcade and other street-level areas will be renovated in order to provide a more attractive pedestrian environment.
- o The existing parking garage access/egress drive along Arch Street will be replaced with a new office building entrance, and garage traffic along this narrow street eliminated.
- o Sidewalk paving and lighting will be designed and implemented according to the Midtown Cultural District Plan.
- o The proponent will actively promote the use of "T"

passes, as well as vanpooling, ridesharing, and flextime programs by employers.

- o The proponent will implement a traffic management plan.

6.0 EMPLOYMENT

During the construction phase of Forty Franklin, it is estimated that approximately 1100 jobs (person/years) will be generated at the construction site with a payroll of approximately \$53 million.

Upon completion of the Option A proposal, approximately 3100 permanent jobs will be created on-site.

7.0 REGULATORY CONTROLS

7.1 Permits Required

A number of Federal, State and Local permits will be required before the project can be constructed and occupied. These permits and actions are detailed in Part II, Section 5.0.

8.0 COMMUNITY GROUPS

8.1 Interested Parties

The names and addresses of project area property owners, displacees, abutters, and community groups which may have substantial interest in this project are listed in Appendix B.

8.2 Meeting Log

A log of meetings which have been held to date with interested parties is listed in Appendix B. While the project team will continue to meet with these parties, the extent or schedules of these meetings has not yet been determined.

9.0 ENVIRONMENTAL IMPACTS

9.1 Transportation/Traffic

A detailed analysis of anticipated impacts has been

included within Part IV of this report. The analysis indicates that the construction of Forty Franklin will generate approximately 1250 person trips during the morning peak hour, and 1141 person trips during the afternoon peak hour. However, when modal splits and vehicle occupancies are accounted for, the actual number of new vehicular trips are only 240 trips during the morning peak hour and approximately 210 trips during the afternoon peak hour.

The results of the traffic analyses demonstrates that all of the intersections within the study area have adequate capacity to accommodate the added traffic due to the construction of Forty Franklin. Operating conditions under the 1994 Build condition (Option A) will remain at LOS C or above, except at the intersection of Milk Street and Arch Street which will operate at LOS E under both No-Build and Build Scenarios.

It is of particular importance is that under the Build scenario, the garage exit will be relocated to Hawley Street. Traffic leaving the site will use Milk Street instead of Arch Street. As a result, traffic volume as well as the vehicular queue length on Arch Street at this intersection will be significantly lower although the Level of Service will remain at LOS E.

The above analyses were based on the assumption that 65% of the building's employees will use the MBTA or commuter bus system rather than driving their own vehicles to work. In order to further increase this modal share, the proponent plans to work with the future tenants to establish a program to reduce vehicle demand. This program will have the purpose of promoting public transportation use, and will involve selling "T" passes on site. Financial incentives may also be used to encourage higher transit use by subsidizing employee "T" passes. In addition, car-pool and vanpool programs may also be established among future tenants to reduce the potential traffic impacts from Forty Franklin to the maximum extent possible.

Additionally, Part III analyzes the impacts of the proposed development upon the MBTA transit system, the pedestrian environment, and off-street parking facilities. These analysis demonstrate that the proposal development will have minimal impact upon the 1994 transportation network.

9.2. Wind

Pedestrian level wind conditions were assessed using both quantitative and qualitative analysis methods. The quantitative analysis consisted of measuring wind velocity at key locations near the Proposed Project site for the 1994 No-Build and Options A and C.

In comparison with the No-Build, the general windiness of the site increased slightly in both Options A and C. Several areas of high wind will still occur with the proposed project, but no unacceptable wind conditions will exist. For the 1994 No-Build Conditions, the BRA's "31 mph guideline" was exceeded 1 time. This compares to 0 times for Option A, and 0 times for Option C.

The geometric similarity and orientation to the prevalent winds of Option C as compared to Option A produces nearly identical wind patterns along the pedestrian level. The reduced height of Option C will tend to lessen wind speeds as higher altitude and higher speed flow escape over the building.

For Option A, the impact upon the wind environment is minimal. The proposed project site is sheltered from most northern, eastern, and southern winds by nearby tall buildings; only the western winds approach the project site virtually undisturbed. The location of the office tower over the eastern section of the existing site causes the western winds to be directed over the rooftop and away from the pedestrian level.

The one area with notable impacts lies south of the site along Hawley Place, Arch Street and Franklin Street; but no locations exceed acceptable comfort standards for pedestrian activities. The frequently occurring northwest winds will be deflected downward by the proposed project, re-attached along Franklin Street and then pulled into the lower pressure zone directly downstream of the site. Large increases in windspeeds can be expected at the project entrance along Arch Street due to southwest and northwest winds wrapping around the end of the building.

The presently windy intersection of Franklin Street and Devonshire Street is favorably affected by the proposed project. From the western direction, the tall, flat-faced Shawmut Bank building lies in the wake of Forty Franklin, producing lower wind speeds along Devonshire Street. In fact, winds at the corner of Franklin and Devonshire Streets, which exceeded the BRA 31 mph guideline for the No-Build Condition diminished to acceptable levels for Option A.

Notably free of wind problems, Washington Street will remain a region of calm winds with only slight increases recorded from Franklin Street to Milk Street. Although increased windiness can be expected along Milk Street and the northern half of Hawley Street, wind comfort levels do not change.

9.3. Shadow

A Shadow Analysis has been conducted for the three development options under consideration. The results indicate that the only pedestrian area impacted by new shadows from Option A is Washington Street in front of the Old South Meeting House and the Boston Five Cents Savings Bank Park. The duration of the shadow, however, is less than two hours per day, well within the requirements of Article 38 of the Boston Zoning Code, and does not occur year round.

9.4. Daylight

The analysis has demonstrated that Option A, the preferred build alternative, has less impacts on daylight than Option C. This is particularly true in regards to the maintenance of daylight at the area's most important pedestrian zone, the intersection of Washington and Franklin Streets at Filene's Park.

9.5. Air Quality

The air quality analysis performed for Forty Franklin indicates that the project generally will have a minimal impact upon 1994 No-Build air quality levels within Downtown Boston. Should impacts occur, they will primarily reflect the relocation of the parking garage's entrance and exit from Arch Street to Hawley Street. All predicted CO concentrations remain below the National Ambient Air Quality Standards, thus requiring no mitigation.

9.6. Noise

The noise level analysis performed for Option A indicates that the project will not result in any significant changes to the ambient noise levels. The estimated ambient noise levels will not exceed the NAC or the City of Boston noise ordinances for a commercially developed area.

9.7. Geotechnical Impact

Soil borings for the existing building generally indicate stiff clay below fill, followed by sand, till and shale bedrock. At Arch Street, bedrock was encountered at elevation minus 34 feet. Further soil borings will be undertaken when the locations of new foundations are finalized. Geotechnical considerations will include the effect of construction procedures on adjacent structures. Consideration will be given to the use of deep foundations units, the installation of which will not cause vibration disturbance.

9.8. Solid and Hazardous Waste

The proposed project calls for the construction of an office building and will not generate hazardous materials. The project will generate approximately 9,000 cubic yards per year of solid waste.

Haley and Aldrich, Inc. has conducted a preliminary analysis of the site, including its historical uses. Although a detailed 21E Site Investigation will be performed prior to the Final DP/EIR, there is no reason to suspect the existence of contaminated natural soil on-site. However, the existing urban fill materials will require evaluation during the detailed 21E study.

9.9. Construction Impact

The construction period for the proposed Forty Franklin project is expected to last approximately from 1990 to 1993. Typical construction hours for the project will be from 7:00 AM to 11:00 PM, Monday through Friday, and occasionally on Saturday.

The construction truck routes proposed utilize major thoroughfares rather than neighborhood streets. Enforcement of truck routes will be accomplished through clauses in the contractors' and subcontractors' agreements, and compliance will be carefully monitored by the construction manager. Limiting the impacts of construction traffic and truck noise on the adjacent neighborhoods was the most important factor in determining truck routes.

The staging for each area of development will be located to ensure safe and efficient construction with a minimum disruption to the existing tenants, pedestrians, and automobile traffic in the area. The proposed staging

plan will isolate construction while providing safe access for pedestrians and automobiles during normal day-to-day activity and emergencies. Particular attention was given to Washington and Franklin Streets due to their pedestrian character.

In order to ensure the public safety, detail officers on assignment in the construction zone will be responsible for maintaining a safe and orderly flow of vehicles and pedestrians. A Traffic Management Plan in compliance with the City's Construction Management Program will be submitted to the Boston Transportation Department for approval prior to the actual start of construction.

9.10. Rodent Control

Rodent control will be undertaken throughout the construction of the project in accordance with City of Boston and Commonwealth of Massachusetts requirements.

9.11 Urban Design

Options A and C, both of which propose office tower additions, have been sensitively designed to respond to the objectives set forth in the Midtown Cultural District Plan. Although Option A exceeds the current zoning height and FAR limit allowed in a Planned Development Area (PDA) on the site, the additional height enables the tower to be articulated and stepped to express its role as a transitional building between Downtown Crossing and the Financial District. Although Option C is smaller, both in floor area and height, and substantially conforms to zoning requirements for a PDA on the site, it does not seem to offer any significant urban design benefit when compared to Option A. Furthermore, Option A proposes the comprehensive redesign and rejuvenation of the existing Woolworth facades along Washington and Franklin Streets, thus providing a major improvement to the central retail area of the city.

9.12 Historic Resources

There are no historic resources located on the project site. However, the site is adjacent to the Newspaper Row and Commercial Palace Historic Districts. In addition, other individual historic properties are located nearby on Milk, Bromfield and Washington Streets, the most significant of which is the Old South Meeting House. The proposed project has been designed to minimize any

negative impacts on the historic properties. The developer's preferred design, Option A, includes the redesign and reconstruction of the existing Woolworth facade along Washington and Franklin Streets, thus providing a major improvement to the general site context which encompasses the historic buildings.

9.13. Sewer Impacts

The proposed development will generate a flow of approximately 41,758 gallons/day (gpd). This results in a total flow from the site that is estimated at 60,058 gpd, when the existing retail store and garage are included.

The proposed project will necessitate a new sewer connection on Arch Street. The proposed sewer service will connect to the existing combined 12" diameter sewer. The developer, sensitive to the city of Boston's desires to separate storm water and sanitary flows, will closely examine the feasibility of placing a new storm drain system under Arch Street along the project perimeter. The proposed storm drain, if constructed, would carry the project's roof runoff and Arch Street drainage. This new drain will be connected back into the combined sewer system at Milk Street. Ultimately, as improvements by municipal and private sources are made on Milk Street, the drain could be connected into a separate storm drain system.

9.14. Water Quality and Supply

The proposed project calls for the construction of an office building above an existing structure. No change in existing drainage patterns or rate of runoff is anticipated.

The proposed development's average daily water demand for Option A is estimated to be on the order of 66,064 gallons per day (GPD), when the existing uses are included. The Peak Daily Rate is estimated to be 100 gallons per minute (GPM) or approximately 200% of the Average Daily rate. Peak fire fighting demands are anticipated to be on the order of 1,500 GPM. Preliminary, review of fire flow data indicates more than adequate water supply and pressure is available in the existing system.

9.15. Energy Demand

The existing Woolworth Store and the parking garage are currently serviced with connections to electrical, telecommunications, steam, and gas systems located in the surrounding street network. Service to the proposed project will be provided by new connections from the existing sources in Arch Street.

According to both the Boston Gas Company and the Boston Edison Company, adequate supplies of both gas and electricity exist to meet the specific requirements of the project. Additional vault space will be provided to help meet the demand for electricity.

In regard to telephone service, the New England Telephone Company estimates that both conventional copper wire and fiber optic cable will be used to service the proposed office tower. Service connections can be made on Arch Street or Franklin Street. Two separate entry connections are recommended for reliable service.

II. GENERAL INFORMATION

1.0 APPLICANT INFORMATION

1.1 Property Owner

Frank-King Associates Limited Partnership
c/o Kingston Investors Corp.
430 Park Avenue
New York, N.Y. 10022

E. Peter Krulewitch, General Partner
(212) 308-6990

1.2 Developer

Old State Management Corp.
Exchange Place
53 State Street
Boston, MA 02109

Harold Theran, President
Daniel Hart, Executive Vice President
Edward Zielinski, Vice President
(617) 742-9888

1.3 Legal Counsel

Goodwin Procter & Hoar
53 State Street
Boston, MA

Joseph W. Haley, Esq.
(617) 570-1000

Kopelman and Paige, P.C.
77 Franklin Street
Boston, MA 02110

Donald G. Paige, Esq.
(617) 451-0750

1.4 Environmental Consultant

H.W. Moore Associates, Inc.
112 Shawmut Avenue
Boston, MA 02118

Barry S. Porter, AICP
(617) 357-8145

1.5 Architects

Shepley Bulfinch Richardson and Abbott, Inc.
40 Broad Street
Boston, MA 02109

Jan Heespelink, AIA
(617) 423-1700

Crang & Boake Inc.
85 Moatfield Drive
Don Mills, Ontario, Canada M3B3L6

Colm Murphy
(416) 449-1203

1.6 Construction Consultant

Beacon Construction Company
Three Center Plaza
Boston, MA 02108

David Lash
(617) 742-8800

1.7 Structural Engineer

Carruthers & Wallace Ltd.
90 Eglinton Ave. W.
Toronto, Ontario, Canada M4R2E4

John Springfield
(416) 489-0052

1.8 Geotechnical Engineer

Haley & Aldrich, Inc.
58 Charles Street
Cambridge, MA 02141

Edmund Johnson
(617) 494-1606

1.9 Wind

Technology Integration and Development Group, Inc.
1 Progress Road
Billerica, MA 01821

Richard Hayden
(508) 667-3779

1.10 Air Quality & Noise

Jason M. Cortell and Associates, Inc.
244 Second Avenue
Waltham, MA 02154

David Ernst
(617) 890-3737

1.11 Legal Information

The developer, Old State Management Corp., is a joint venture partner in the Cabot Estates Development in Jamaica Plain. Harold Theran is the President of Old State Management Corp.

There are no taxes owed on properties owned by Old State Management Corp. There were tax arrears for the project site which have been paid. There are no legal judgements or actions pending concerning this proposed project.

The project site contains two parcels totaling 63,920 square feet. One parcel of approximately 58,819 square feet, is owned by Frank-King Associates Limited Partnership. The remaining land, a 5,101 square foot parcel fronting on Arch Street, is owned by the Boston Redevelopment Authority.

1.12 Financial Information

Detailed financial information regarding the project will be submitted to the BRA under separate cover. The following table provides detailed information regarding the property owner and the development team.

OWNER

FRANK-KING ASSOCIATES, L.P.
c/o Kingston Investors Corp.
430 Park Avenue
New York, NY 10022
Mr. E. Peter Krulewitch

FINANCIALLY INVOLVED
PARTICIPANTS

KINGSTON WASHINGTON ASSOC., L.P.
c/o Kingston Investors Corp.
430 Park Avenue
New York, NY 10022
Mr. E. Peter Krulewitch

NYNEX PROPERTIES CO., INC.
21 Penn Plaza
New York, NY 10001
Mr. Barry Abrams

BOWO ASSOCIATES L.P.
c/o Odyssey Partners, L.P.
437 Madison Avenue
New York, NY 10022
Mr. Martin Rabinowitz

DEVELOPER

OLD STATE MANAGEMENT CORP.
53 State Street - 37th Floor
Boston, MA 02109
Mr. Harold Theran

BANK REFERENCES

MANUFACTURERS HANOVER TRUST
600 Fifth Avenue
New York, NY 10020
(212) 286-6407
Mr. John Taylor

BANK REFERENCES

MANUFACTURERS HANOVER TRUST
600 Fifth Avenue
New York, NY 10020
(212) 957-1916
Ms. Dorinda Oliver

NYNEX CONCENTRATION ACCOUNT
Chase Manhattan
1 Chase Manhattan Plaza
(212) 552-2222
Mr. Robert Smith

MANUFACTURERS HANOVER TRUST
40 Wall Street
New York, NY
(212) 623-1603
Mr. Chris Cieszko

BANK OF NEW ENGLAND
28 State Street 28th Floor
Boston, MA 02109
(617) 573-2828
Mr. Jim Sweeney

HISTORY OF PROJECT

The current owners purchased this building in 1985 with the particular purpose of redeveloping the site and improving the current structure. The developers' objective remains to upgrade the facade of the Woolworth building, conceal the parking structure, and unify the old and new elements so that they will read as a single building.

For more than four years, Old State Management Corp. has been working with their architects and various City officials to find a conceptual solution to the unique problems presented by this site. One point on which there has been full agreement is that the appearance of the existing structure needs improvement. The project which will make this possible, however, must be built with a minimal disruption to the existing tenants, F.W. Woolworth and Meyers Parking. The site and its' location (Figure II.2.1) require that the project be sensitive to the scale and needs of the Downtown Crossing shopping district at Washington Street and the Financial District at Arch Street.

Early design studies focussed on locating the office addition on the Woolworth portion of the site, the area bounded by Washington, Franklin, and Hawley Streets. These studies culminated in a proposal that was presented to BRA staff in March 1988. Following review of that scheme, and after discussion with City officials, the office building component moved to the Arch Street part of the site, thereby minimizing visual wind and shadow impacts on the shopping district and nearby sites of historical significance. In this location, the project will provide a transition between Downtown Crossing and the Financial District.

The Project Notification Form (PNF), submitted to the City in October 1988, proposed a project that would totally rejuvenate the existing structure and add an office building containing 545,000 FAR gross square feet. The 22-story office addition resulted in a 399.5-foot high building (measured from Washington Street) with average tower floor plates of approximately 23,100 square feet. The FAR was approximately 16. The design was based on keeping the circular "drum" ramp for garage access. Therefore, shuttle elevators, one pair located at the corner of Franklin and Hawley, and one pair located in the center of the "drum" were to provide access to the lowest new office floor. This floor (the "transfer" floor), was designed to function as a sky lobby providing access to the main office elevators.



Figure II.1.1 Locus Map

In early 1989, a study was made to determine the feasibility of a revised design that extended the main office elevator and stair core down to the street in order to eliminate the shuttle elevators and sky lobby, thus improving the vertical circulation of the office building. The results of the study indicated that the improvement was feasible, and the change was incorporated into subsequent design studies.

Following receipt of the Scoping Determination in February 1989, the Proponent's design team met several times with BRA staff over the course of three months to review various massing approaches related to the preferred program. The "stepped" scheme, which is Option A in this DP/EIR, is the result of these studies and the collaborative process.

3.0 DESCRIPTION OF DEVELOPMENT OPTIONS

Following submission and review of the Project Notification Form and its accompanying design, three optional design programs were defined by the BRA to form the basis of the Draft Project and Environmental Impact Report. These options are:

Option A: A project with a height of 436.5 feet and an FAR of 18.4.

Option B: A project with an enhanced height of 155 feet and an FAR of 10.

Option C: A project with a height of 362.6 feet and an FAR of 16 which complies the height and FAR provisions for a Planned Development Area I under Article 38 of the Boston Zoning Code.

Option A is essentially the program described in the Project and Environmental Notification Form and is the project proposed by the Proponent. Option B, the as-of-right (enhanced) scheme describes what would be possible without PDA designation or zoning variances, while Option C describes a project consistent with current zoning assuming the site is designated a Planned Development Area (PDA).

Table II.2.1 compares the program, height floor plates and FAR for the existing building, the PNF/ENF scheme and current Options A, B and C.

Table II.2.1

Comparison of Existing Building with Proposed Concepts

	Existing Building	Oct. 1988 PNF		Option A	Option B	Option C
		Scheme				
Site Area	58,819 s.f.	63,920 s.f.	63,920 s.f.	58,819 s.f.	63,920 s.f.	
Floor Area*						
- Office	- - -	545,000 s.f.	543,500 s.f.	145,600 s.f.	468,700 s.f.	
- Retail	134,700 s.f.	134,700	134,700	132,600	134,700	
- Parking	335,100	335,100	435,400***	335,100	401,300	
Total	469,800 s.f.	1,014,800 s.f.	1,113,600 s.f.	613,300 s.f.	1,004,700 s.f.	
FAR	8.0	15.9	17.4	10.4	15.7	
Height**						
- Base	109.5 ft.	136.5 ft.	119.5 ft.	157.0 ft.	136.5 ft.	
- Tower	- - -	399.5	436.5	- - -	361.5	
No. of Office Floors	- - -	22	25	3	19	
Tower Floor Plate						
- Maximum floor	- - -	25,000 s.f.	22,470 s.f.	- - -	22,430 s.f.	
- Average	- - -	23,100	21,740	- - -	22,430	
Parking Office Area	880 cars	880 cars	1,084 cars***	880 cars	904 cars	

*Area in accordance with Boston Zoning Code for FAR purposes.

**Height measured from Washington Street.

***Include infill of existing garage Lightwell.

PUBLIC BENEFITS

The developers of Forty Franklin have proposed an extensive public benefits package under Option A. The following is a brief description of the proposed linkage contributions and other public benefits being considered. Table II.4.1 compares the benefit packages for Options A and C. A public benefit package for Option B is not considered to be economically feasible.

Option A will provide approximately \$445,000 in jobs linkage funds either through the jobs creation option or the jobs contribution option. The project will also generate 1100 new construction jobs over the 36 month duration of construction. The developers will participate in the Boston Residents Jobs Policy to help ensure that construction jobs are oriented towards Boston residents. Upon completion, the project will provide space for approximately 3,100 permanent jobs. The developer will also participate in the "Boston for Boston" initiative to strive to ensure that 50% of all permanent jobs are available to Boston residents.

Option A will provide approximately \$2,225,000 in housing linkage funds either by the housing creation option or by the housing contribution option. The developer will work with the appropriate city agencies to find programs worthy of these funds and help with the effective management of these funds.

Option A will provide 8000 square feet of child care facilities to serve area employees and residents. The location of this facility will be within the Midtown Cultural District as described in Section 18 of Article 38.

Upon completion of the proposed project, the annual real property taxes are projected to be approximately \$3,100,000 under Option A. Coupled with the \$600,000 annually generated by the facility today, the City of Boston will realize approximately \$3,700,000 of real property taxes from this project on an annual basis.

Option A includes the addition of approximately 204 parking spaces to the existing 880 space parking garage. While the final design of the garage is still in the conceptual stage, these additional spaces will be limited to building tenants only. This will not only allow the garage to meet the demands from the office building, but will continue to ensure that the number of parking spaces presently utilized by shoppers will remain available. Garage operations will also be revamped to allow 24-hour

TABLE II.4.1

PUBLIC BENEFITS COMPARISON

Public Benefits Benefits	Option "A"	*	Option "C"
Linkage			
Housing	\$2,225,000		\$1,840,000
Jobs	\$445,000		\$369,000
Employment			
Construction	1,100 Jobs**		950 Jobs**
Permanent	3,100 New Jobs		2,600 New Jobs
City & State Revenues			
Real Estate Taxes	\$3.1 million		\$2.7 million
Transportation			
T-Pass Program	Yes		Yes
Vanpool/Ridersharing	Yes		Yes
Re-open Hawley Street	Yes		No
Public Space Improvements			
Renovated Arcade	Yes		No
Renovated Existing Facades	Yes		No
Childcare			
Facility Size	8,000 square feet		4,000 Square feet
Number of Children	80		40

*Option B is excluded from this table since the project is not economically feasible.

**Person years

garage access for patrons.

The garage addition and reconstruction will also allow Hawley Street to be re-opened between Franklin and Milk Streets. This will enable the existing access/egress drive on Arch Street to be closed, thus reducing the existing vehicle queues at Arch Street's intersection with Milk Street. In addition to providing vehicular access to the garage, the reconstructed Hawley Street will result in a greatly improved environment for pedestrian activity. The developer will continue to work toward the implementation of a coordinated traffic access plan for the construction of all major Midtown projects.

A significant benefit to the people of Boston includes the complete exterior renovation of the existing Woolworth building and garage. The building will be re-clad with materials complementary to the urban fabric of the Downtown Crossing area. The existing arcade will also be renovated and extended to Arch Street to serve as a link between Downtown Crossing and the Financial District.

The proposed benefits package will also include a program for the installation of art in the new building and the provision of one or more of the following items, in compliance with the public benefits criteria of Section 38-14 of the Midtown Cultural District zoning: (a) development or contribution to the development of a theater or cultural facility; (b) the rehabilitation or contribution of a landmark, historic building, or existing theater; or (c) the provision of affordable housing. In determining the manner of its compliance with the Midtown Cultural District requirements, the developer will take into consideration the request of the Midtown Cultural District Task Force to provide funds to aid in the construction of a 499-seat flexible theatre and two visual arts galleries, and to contribute to the administration and operation of the Boston Cultural Corporation.

5.0 REGULATORY CONTROLS

5.1 Permits Required

Based on the current design, it is anticipated that the following Federal, State and Local permits will be required before the project can be constructed and occupied.

<u>AGENCY</u>	<u>PERMIT</u>
<u>FEDERAL</u>	
Federal Aviation Administration	Determination of Impact on Air Navigation
<u>STATE</u>	
Executive Office of Environment Affairs	MEPA Certification
DEP/Division of Water Pollution Control	Sewer Connection Permit.
Mass. Historical Commission	Determination of Effects on Historic Property.
<u>CITY OF BOSTON</u>	
Boston Redevelopment Authority	Certification of Compliance Development Plan and Development Impact Project Plan Approval Design Review Land Disposition Agreement
Boston Civic Design Commission	Review and Approval of Project Design
Office of Jobs and Community Services	Resident Construction Employment Plan
Zoning Commission	Planned Development Area Designation (Map Amendment) Article 38 Text Amendment
Board of Appeals	Exceptions and Conditional Use Permits. Building Code Variances
Inspectional Services Department	Building Permits
Water & Sewer Commission	Sewer Connection Permit

AGENCY

PERMIT

Public Safety Commission	Fuel Storage Permit Parking Garage Permit Amendment
Air Pollution Control Commission	Parking Freeze Exemption or Permit
Public Improvement Commission	Approval of Hawley St. Air Right Easements Approval of Recladding Easements

5.2 Boston Zoning Requirements

The proposed project site lies entirely within the Midtown Cultural District and is, therefore, governed by Article 38 of the Boston Zoning Code. Pursuant to Section 38-10 and Map 1A of the Code, the site is within an area in which a Planned Development Area (PDA) may be permitted. The project has largely been designed to the guidelines contained in the Midtown Cultural District Plan and Article 38 of the Zoning Code. The project as proposed in Option A does not now conform with the height and FAR provisions of Article 38 for a PDA on the site.

Under Article 38 the as-of-right building height for the project is 155 feet and the as-of-right FAR is 10. If a PDA designation is made by the Zoning Commission, the project must be in substantial accord with a height standard of 350 feet and an FAR of 14. The FAR standard may be further increased to 16 pursuant to the bonus provisions of Section 38-8.

Based on the current design of the proposed project (Option A), the following zoning approvals will be required:

- o Development Plan Approval for a Planned Development Area (PDA-I).
- o Map Amendment for a PDA designation.
- o Text Amendment to allow the additional height and FAR in a PDA.
- o Exceptions for street wall continuity and street wall height.
- o Conditional Use Permit for accessory parking may be required.
- o Development Impact Project Plan approval.

III. TRANSPORTATION

1.0 TRAFFIC

1.1 Description of the Existing Environment

1.1.1 Introduction

In accordance with the scopes issued by the Boston Redevelopment Authority (BRA) and the Massachusetts Executive Office of Environmental Affairs (EOEA), this section will evaluate the potential traffic impacts resulting from the construction and occupation of the Option A scheme for Forty Franklin. Utilizing standard traffic engineering principles, this section will analyze existing conditions, 1994 background development, estimate the number of vehicle trips that Forty Franklin will generate, and evaluate the impacts from those trips on the local roadway network.

1.1.2 Study Procedure

This traffic study was conducted in three distinct phases. The first phase involved an inventory of existing conditions and travel demand characteristics in the area. This inventory included researching information on all existing and proposed development activities within the area; conducting turning movement counts during the peak periods (7-9 AM and 4-6 PM) at critical intersections within the immediate study area (Figure III.1.1); and conducting an analysis of existing operating conditions.

The second phase involved an analysis of other proposed projects in the area, as well as the Forty Franklin project (Option A only), in terms of trip generation and distribution paths. Capacity calculations were conducted for the 1994 No-Build and Build scenarios.

The final phase identified potential mitigating measures required.

1.1.3 Description of the Project Site

The site is located in the heart of downtown Boston, with its most easterly portion being a part of the Financial District. The site is bounded by Franklin Street to the south, Washington Street to the east, Milk Street to the north and Arch Street to the west. The site is well served by public transportation, with immediate access to the MBTA rapid transit stations, and several local and express bus stations. Land use in the area is predominantly office and commercial.



Figure III.1.1 Study Area Intersections

1.1.4 Street Network and Geometrics

The area street network consists of Franklin Street, Washington Street, Arch Street, Milk Street, Devonshire Street, Hawley Street and School Street. Regional access to the study area is provided by Massachusetts Turnpike (I-90) to and from the west and Interstate Route 93, (Central Artery and Southeast Expressway) to and from the north and south. Local access to and from the site is provided by Franklin Street, Milk Street, Hawley Street, and Arch Street.

The following is a brief description of the critical intersections within the study area.

- o Washington Street/Water Street This is an unsignalized 3-way intersection. Washington Street measures about 25 feet and provides for one-way northbound travel. Water Street measures about 21 feet and provides for one-way eastbound travel. No on-street parking is permitted on Washington Street near the intersection. On-street parking is permitted on the south side of Water Street.
- o School Street/Washington Street This is a 3-way signalized intersection. School Street measures about 21 feet and provides for one-way eastbound traffic flow only. On-street parking is permitted on the south side of the street. Washington Street measures about 21 feet south of School Street and about 27 feet north of School Street and provides for one-way north bound travel only. On-street parking is permitted on the easterly side of the street north of School Street. Washington Street south of Milk Street is restricted to pedestrian traffic only.
- o Milk Street/Hawley Street This is a 3-way unsignalized intersection. Milk Street measures about 32 feet and provides for one-way westbound traffic flow west of Hawley Street and two-way travel east of Hawley Street. On-street parking is not permitted on either side of the street. Hawley Street measures about 26 feet and on-street parking is permitted on both sides of the street.
- o Milk Street/Arch Street This is a 3-way unsignalized intersection. Milk Street measures about 32 feet and provides for two-way traffic flow between Arch Street and Hawley Street. On-street parking is not permitted on this section of Milk Street. To the east of Arch Street, Milk Street becomes one-way eastbound. On-street parking is permitted on the southern side

of the street. Arch Street measures about 25 feet and provides one-way northbound travel with parking permitted on the eastern side.

- Milk Street/Devonshire Street This is a 4-way signalized intersection. Milk Street measures about 45 feet and provides for one-way eastbound traffic flow. On-street parking is permitted on the southern side of the street. Devonshire Street measures about 25 feet and provides one-way southbound travel. Parking is permitted on the west side of the street.
- Franklin Street/Devonshire Street This is a 4-way signalized intersection. Franklin Street measures about 34 feet east of Devonshire Street and widens to about 38 feet west of Devonshire Street and provides one-way westbound flow. On-street parking is permitted on the southern side of the street east of Devonshire Street. Devonshire Street measures about 32 feet north of Franklin Street and about 40 feet south Franklin Street. Parking is permitted on the east side of the street north of Franklin Street. North of Franklin Street, Devonshire Street provides for one-way southbound travel only. Traffic becomes two-way south of Franklin Street.
- Franklin Street/Arch Street This is a 4-way signalized intersection. Franklin Street measures about 57 feet with a 15 foot wide channelization island in the middle. Franklin Street provides for one-way westbound traffic flow and can accommodate three lanes of travel. Arch Street measures about 32 feet south of Franklin Street narrowing to about 25 feet north of Franklin Street. Arch Street is one-way northbound only.
- Arch Street/Woolworth Garage This is the primary access drive, as well as the only egress drive for the Garage. This access drive measures about 36 feet and provides one inbound lane and two outbound lanes. Arch Street at this location measures about 28 feet and provides one-way northbound flow only. On-street parking is permitted on the east side of the street.
- Franklin Street/Hawley Street This location is the secondary access to the Woolworth garage. Franklin Street traffic is restricted beyond Hawley Street with the exception of truck, bus and taxi traffic. Hawley Street measures about 26 feet north of Franklin Street and provides one-way northbound access to the garage. Through traffic is not permitted along Hawley Street.

1.1.5 Existing Traffic Volumes:

Manual peak period intersection turning movement count were conducted at these intersections for both morning and afternoon peak periods during February and September 1989. Results of the counts for the morning and afternoon peak hours are displayed in Figures III.1.2 and III.1.3.

An analysis of the counts show that the morning peak hour typically occurs from 8 AM to 9 AM, and the afternoon peak hour between 4:30 to 5:30 PM. Appendix C contains copies of the actual turning movement data.

1.1.6 Existing Levels of Service

The methodology used to evaluate traffic conditions in this report is based on the standardized procedures outlined in the 1985 Highway Capacity Manual (HCM) published by the the Transportation Research Board. According to this document, the ability of a roadway to handle a given volume of traffic is largely controlled by its intersections. Therefore, this traffic study focuses on the analysis of intersection capacities within the study area.

The HCM defines six (6) discrete Levels of Service (LOS). These levels were developed to describe actual traffic operating conditions ranging from free flow (LOS A) to extreme congestion (LOS F). The Levels of Service take into account the relationship between traffic volume, intersection geometry and operating speed and conditions.

The Level of Service for a signalized intersection is defined in terms of delay as opposed to an analysis of the volume/capacity ratios. Delay is a measure of driver discomfort, fuel consumption and lost travel time.

Specifically, level of service criteria are stated in terms of the average stopped delay per vehicle as shown in Table III.1.1.

TABLE III.1.1

LEVEL OF SERVICE CRITERIA - SIGNALIZED INTERSECTIONS

<u>LEVEL OF SERVICE</u>	<u>STOPPED DELAY PER VEHICLE (SECONDS)</u>
A	Up to 5.0
B	5.1 to 15.0
C	15.1 to 25.0
D	25.1 to 40.0
E	40.1 to 60.0
F	Over 60.0



Figure III.1.2 Existing AM Peak Hour Volumes

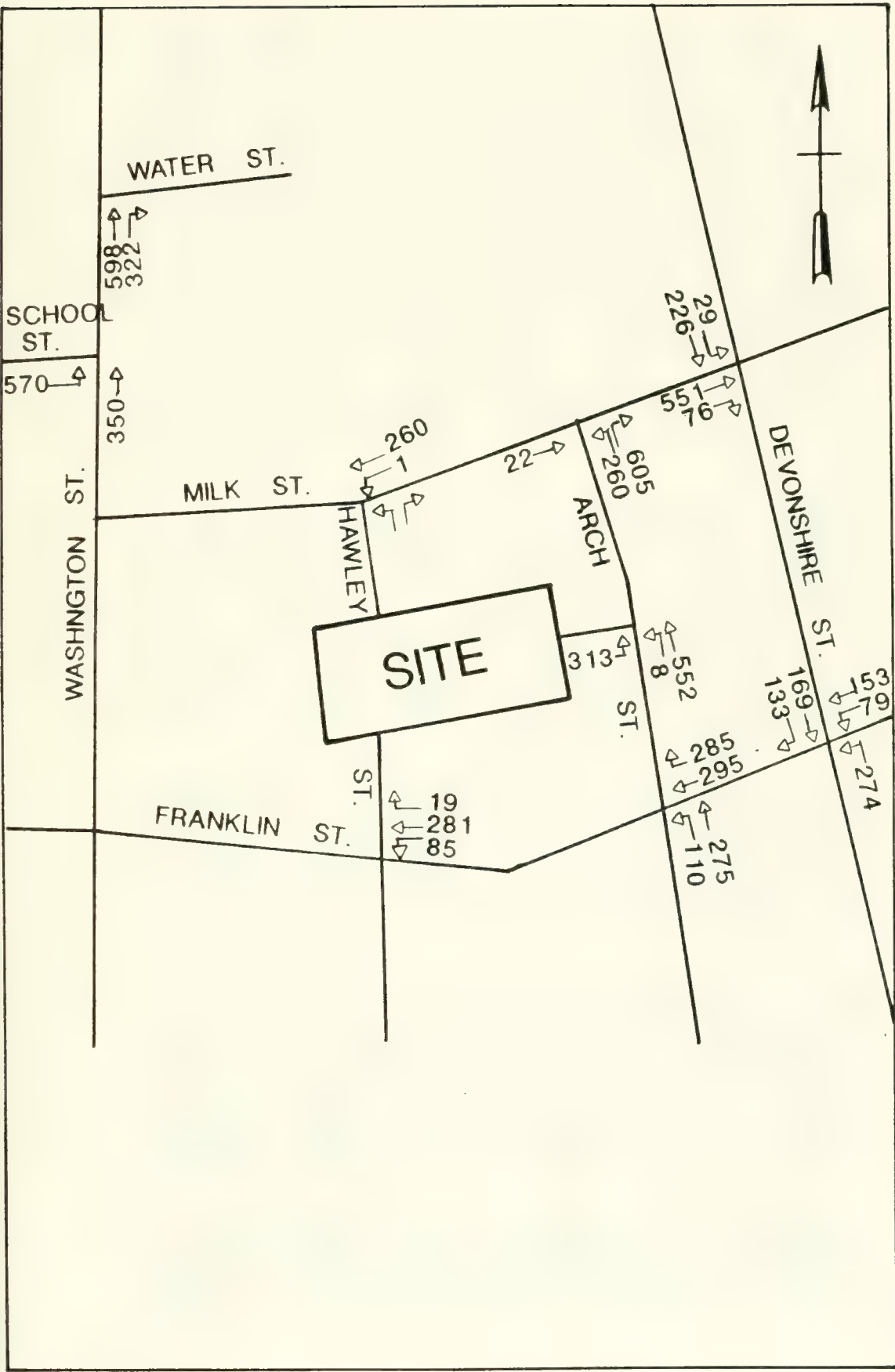


Figure III.1.3 Existing PM Peak Hour Volumes

Because delay is a complex measure, its relationship to capacity is also complex. It is important to note that this concept is not related to capacity in a simple one-to-one fashion. Whereas previous methodologies have always defined the lower bound of LOS E to be capacity, i.e., the point at which the V/C ratio is 1.00, the new signalized methodology makes it possible to have delays in the LOS F range while the V/C ratio is below 1.00, perhaps as low as 0.75 - 0.80. This condition may occur when: (1) the signal cycle length is long, (2) the lane group in question is disadvantaged by the signal timing, (has a long red time) and/or (3) the signal progression for the subject movements is poor. The reverse may also hold true, that is, a saturated approach or lane group (i.e. V/C greater than 1.00) may have low delays. Thus, the designation of LOS F does not automatically imply that the intersection approach or lane group is overloaded.

The operational analysis methodology provided by Chapter 9 of The Highway Capacity Manual (HCM) considers the full details of each of four components at a signalized intersection: demand (service flow rates), geometric design (characteristics), signalization and the level of service that result from these components. This operational methodology, which has been incorporated by the Central Transportation Planning Staff (CTPS) in their computer software program "Capacity of Intersections" (CINCH - April, 1988), has been used in this analysis.

The unsignalized intersections within the study area were analyzed utilizing methodology also contained in the CINCH model. The capacity analysis of an unsignalized intersection differs from that of a signalized one, since conflicting traffic streams do not have the benefit of traffic signal control devices to coordinate and facilitate movement.

CINCH's unsignalized intersection analysis program uses traffic survey data in determining the capacity of a minor street approach at an intersection where the minor street traffic flow is controlled by use of a STOP or YIELD sign. These movements include vehicles turning right from a minor street onto a major street, turning left from a minor street onto a major street and turning left from a major street onto a minor street.

The difference between the capacity and the actual or projected traffic volume is defined as the reserve capacity. Table III.1.2 demonstrates the relationship between reserve capacity and levels of service.

TABLE III.1.2.
LEVEL OF SERVICE CRITERIA
UNSIGNALIZED INTERSECTION

<u>RESERVE CAPACITY</u>	<u>LOS</u>	<u>EXPECTED DELAY</u>
400 or more	A	Little or no delays
300 to 399	B	Short traffic delays
200 to 299	C	Average traffic delays
100 to 199	D	Long traffic delays
0 to 99	E	Very long traffic delays
Less than 0	F	Extreme delays - queuing may cause congestion

As displayed in Tables III.1.9 and III.1.10, (and Appendix C), the analysis indicates that all signalized intersections are operating at a Level of Service B for both morning and afternoon peak hours, with delay times ranging from 7 seconds to 12 seconds. The unsignalized intersection of Milk Street and Arch Street is operating at LOS A during the morning peak hour with a reserve capacity of 590 vehicles. During the afternoon peak hour, operations decline to LOS D, with a reserve capacity of 134 vehicles. At the Woolworth garage's access/egress drive onto Arch Street, the Level of Service during the morning peak hour is LOS B (reserve capacity of 358 vehicles). During the afternoon peak hour, the operations drop to an LOS E, with a reserve capacity of 92 vehicles. Three intersections (Washington Street at Water Street; Milk Street at Hawley Street and Franklin Street at Hawley Street) do not have conflicting movements since these are one-way streets. As a result, these intersections could be considered as operating under LOS A conditions.

When analyzing traffic in Downtown Boston, the relationship of factors such as double parked cars and trucks, pedestrians crossing illegally, and access/egress to loading zones to actual traffic conditions must be taken into consideration. While the CINCH analysis does factor in legal parking and pedestrian activity at intersections, the above described activities will have an incalculable impact upon operations. Therefore, while the model indicates that the intersection operates at LOS A, B, or C, the impact from outside factors will result in additional delays. However, enforcement of existing regulations will mitigate the impacts.

1.2 Alternatives to The Project

In accordance with the Scope issued for this project,

there are only two alternatives that have been analyzed for traffic impacts. The first alternative, the 1994 No-Build, assumes that all other proposed projects within the study area are completed and occupied with the exception of the Forty Franklin. Traffic generated by these other projects, as well as an annual background traffic growth of 0.5%, are added to the existing traffic volumes for the No-Build analysis.

The second alternative is the 1994 Build scenario, which assumes that Option A is implemented. The potential impacts of this scenario are discussed in Part IV., Section 1.3, "Probable Impacts of the Project".

1.2.1 1994 No-Build

According to data obtained from the Boston Transportation Department, there are 19 other projects within the downtown area which have either submitted proposals or received approval. Table III.1.3 describes the type and size of developments, while Figure III.1.4 shows the location of these projects.

TABLE III.1.3
BACKGROUND DEVELOPMENT

<u>PROJECTS</u>	<u>USES</u>
1. 64-74 Franklin	Office/Retail
2. Boston Crossing	Office/Retail
3. Commonwealth Center	Office/Retail/Theatre/Hotel
4. 600 Washington St.	Garage
5. 45 Province St.	Office/Retail
6. 90 Tremont St.	Office/Retail
7. 73 Tremont St.	Office/Retail
8. One Bowdoin Square	Office/Retail
9. 110-120 Tremont St.	Office/Retail
10. 146 Boylston St.	Residential/Retail/ Recreational
11. The Parkside	Residential/Retail
12. Pavilion at Park Sq.	Office/Retail/Residential
13. Parcel C-2	Residential/Retail
14. Don Bosco	Office/Hotel/Residential
15. Parcel R-3/R-3A	Retail/Residential
16. Kingston-Bedford	Office
17. 125 Summer St.	Office/Retail
18. 295 Devonshire St.	Office
19. Post Office Sq. Park	Garage

Although there are 19 projects proposed in the downtown area, a careful study of traffic distribution for each of

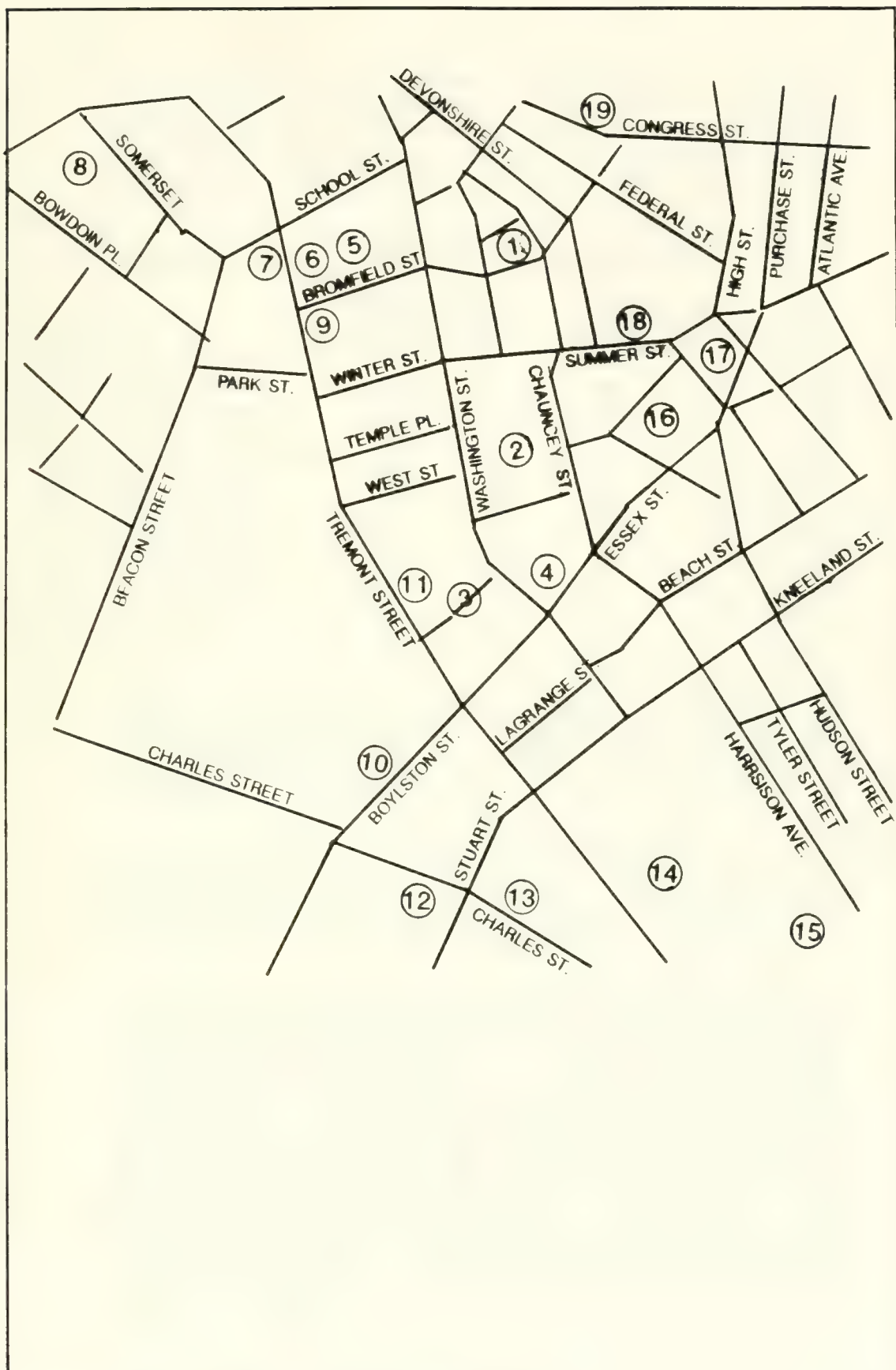


Figure III.1.4 Background Developments

these developments indicates that only 9 of these projects near the Downtown Crossing Area will actually have a direct traffic impact on the intersections being studied in this report. Table III.1.4 lists these projects and the anticipated trip generation.

TABLE III.1.4
ESTIMATED NEW TRIPS WITHIN THE AREA

<u>PROJECT</u>	<u>AM PEAK</u>		<u>PM PEAK</u>		<u>DAILY</u>
	<u>ENTER</u>	<u>EXIT</u>	<u>ENTER</u>	<u>EXIT</u>	
110-120 Tremont	133	21	32	128	1,094
73 Tremont St.	108	17	27	105	940
90 Tremont St.	82	18	30	87	1,018
45 Province St.	68	16	24	69	666
Commonwealth Center	518	173	333	642	5,298
600 Washington	91	2	61	102	1,890
Boston Crossing	610	130	332	709	8,990
125 Summer St.	161	26	35	151	1,232
295 Devonshire	10	2	2	10	98
Kingston/Bedford	294	49	62	271	2,146
74-67 Franklin St.	37	6	10	38	380

Once traffic generated from these other projects was determined, the volumes were then distributed throughout the network based on their specific distribution patterns. Traffic volumes for the No-Build alternative are shown in Figures III.1.5 and III.1.6.

Utilizing the same methodologies applied to the existing condition, the operating conditions for the study area intersections were re-analyzed. The results are displayed in Tables III.1.9 and III.1.10. Copies of the capacity calculations are contained in Appendix C.

The analysis of the 1994 No-Build conditions indicates that all signalized intersections will continue to operate under LOS B conditions during both the morning and afternoon peak hours. At the unsignalized intersections, the garage exit at Arch Street and the intersection of Milk Street at Arch Street will experience a further reduction in reserve capacity during the afternoon peak hour. The Level Of Service at Milk Street and Arch Street will decline to LOS E during the afternoon peak hour. While the Level Of Service at the garage entrance/exit off Arch Street will remain at LOS E, reserve capacity will decline to 69 passenger cars/hour (pcph).

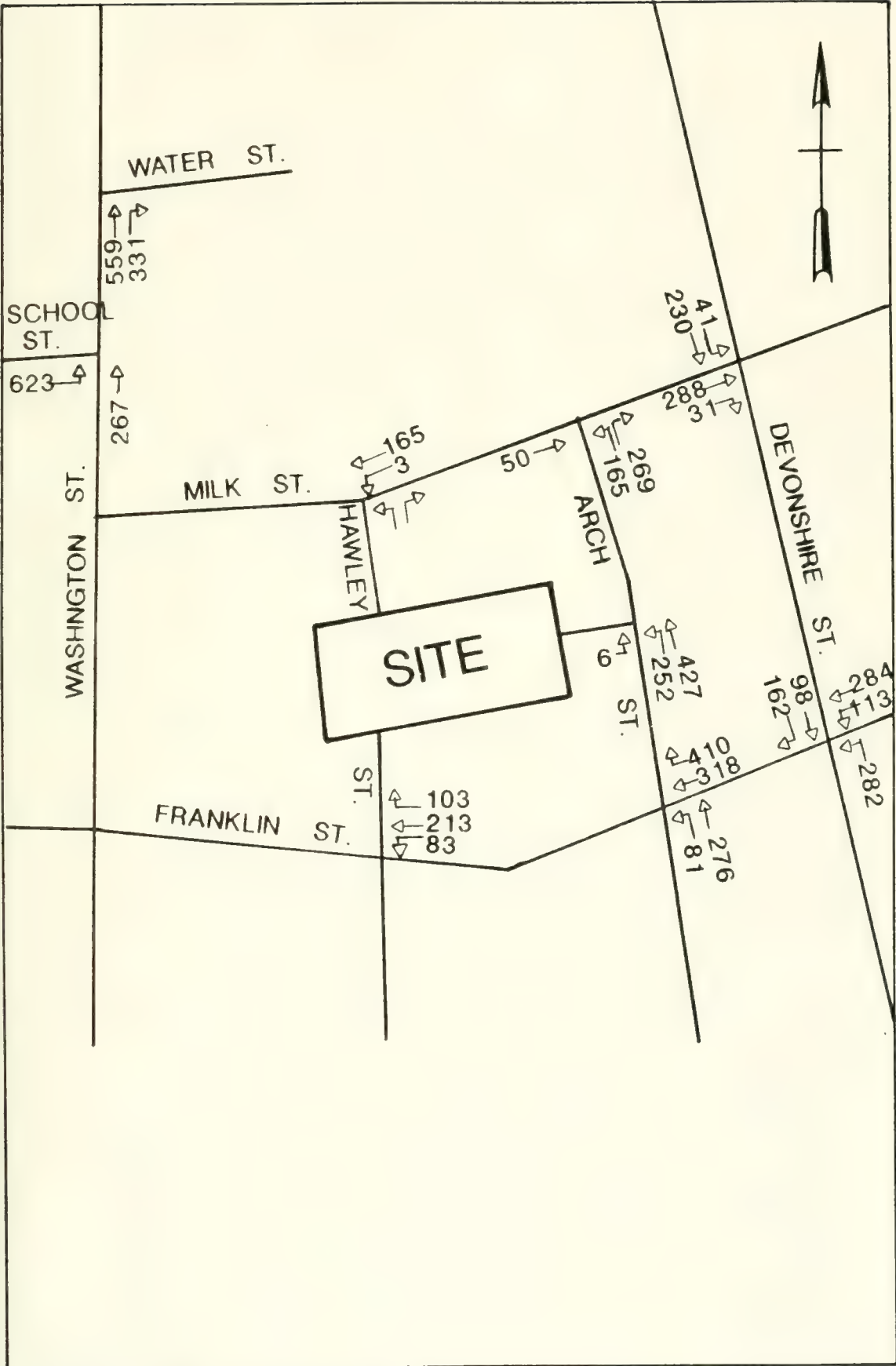


Figure III.1.5 1994 No-Build AM Peak Hour Volumes

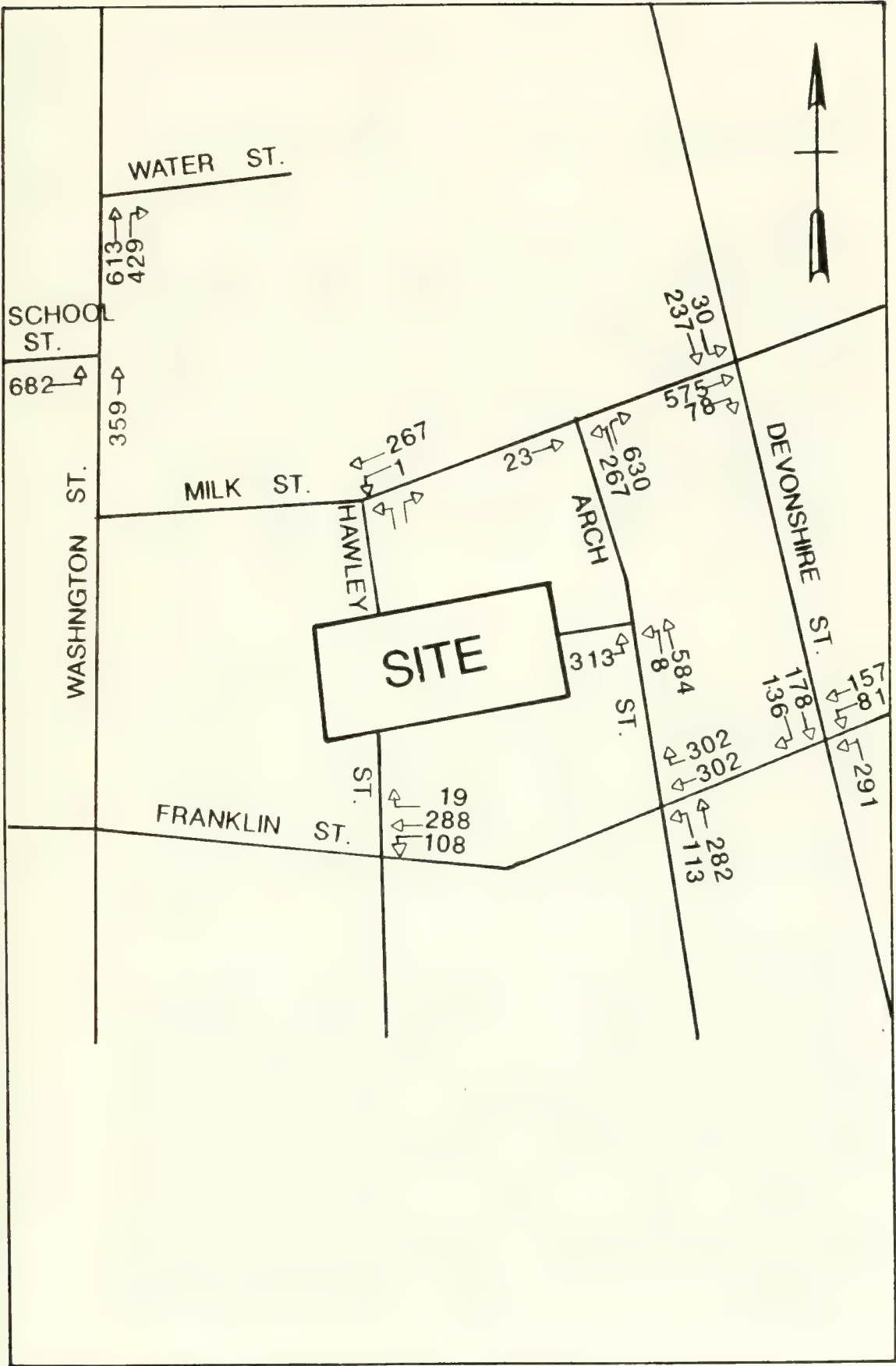


Figure III.1.6 1994 No-Build PM Peak Hour Volumes

1.3 Probable Impacts of The Project

1.3.1 1994 Build - Option A

This scenario assumes that the vehicle trips generated by Forty Franklin (Option A) will be added to the 1994 No-Build traffic network.

The proposed Forty Franklin project consists of approximately 545,000 square feet of office space to be built on top of the existing Woolworth Parking Garage. An additional 204 parking spaces will be added to the existing garage along with the office space. The proposed garage will have only one entrance at Hawley Street off Franklin Street. The existing garage exit off Arch Street will be relocated to Hawley Street off Milk Street. The existing loading area under the garage will remain unchanged. The reopening of Hawley Street between Milk Street and Franklin Street for through traffic is currently under analysis. However, Hawley Street will be used for pedestrian traffic, as well as the new egress point for the garage.

1.3.2 Site Traffic Generation

There are two basic options available for estimating the number of trips that a proposed development will generate. One option is the use of data published in the Institute of Transportation Engineer's (ITE) "Trip Generation, 4th Edition," (1987). This publication contains trip generation rates for a wide variety of land use types. These vehicle trip rates are obtained from nationwide studies and are generally suitable for design purposes. The appropriate land use categories and trip equation rates are displayed in Appendix C.

However, these rates are traditionally collected from suburban office parks, rather than midtown office buildings in large urban areas. In order to address this issue, the Boston Transportation Department (BTD) has prepared Boston specific person trip generation rates, and incorporated them into the Transportation Access Plan Guidelines (1989, Boston Transportation Department). The BTD rates are subdivided into work and non-work trips, reflecting the different characteristics of each. While the work trip rates are similar to ITE's unadjusted rates, the addition of the non-work category provides a more conservative estimate of trip generation for the proposed development. Table III.1.5 contains the BTD rates as well as the estimated number of person trips that will be generated.

TABLE III.1.5
TRIP RATES AND VOLUMES ¹

	<u>AM PEAK HOUR</u>		<u>PM PEAK HOUR</u>		<u>DAILY</u>
	<u>Enter</u>	<u>Exit</u>	<u>Enter</u>	<u>Exit</u>	
<u>Work</u>					
Rate	1.7	0.0	0.1	1.5	8.6
Volumes	924	0	54	815	4,674
<u>Non-work</u>					
Rate	0.4	0.2	0.2	0.3	4.8
Volumes	217	109	109	163	2,609

¹ Person trips per 1,000 sq.ft.

To properly account for the actual vehicular traffic impacts due to this project, the average vehicle occupancy rate, as well as transit and pedestrian trips must be accounted for. According to BTG, an average vehicle occupancy rate of 1.6 passengers/auto work trip, and 1.4 passengers/auto non-work trip are appropriate. In addition, a modal split was applied to both work and non-work trips as shown in Table III.1.6. Application of these factors result in the net vehicular trip generation shown in Table III.1.7.

TABLE III.1.6
MODAL SHARE

<u>TYPE OF TRIP</u>	<u>AUTO</u>	<u>TRANSIT</u>	<u>WALK</u>
Work Trips	30.0%	65.0%	5%
Non-Work Trips	27.5%	57.5%	15%

1.3.3 Trip Distribution and Assignment

The distribution of trips to and from a development is generally a function of location of various land use types as well as area street network orientation. Regional distribution used in this study is based on the distribution published in the Transportation Access Plan Guidelines prepared by the Boston Transportation Department for the downtown area as shown in Table III.1.8.

Using these distribution percentages, specific routes to and from the site were developed according to existing traffic circulation patterns in the area and capacity constraints of the area street. Travel routes to and from

TABLE III.1.7
TRIP GENERATION - FORTY FRANKLIN

<u>Volumes</u>	<u>AM PEAK HOUR</u>		<u>PM PEAK HOUR</u>		<u>DAILY</u>	
	<u>Enter</u>	<u>Exit</u>	<u>Enter</u>	<u>Exit</u>	<u>ENTER</u>	<u>EXIT</u>
AUTO						
Work	173	0	10	153	438	438
Non-work	43	21	21	32	256	256
Total	216	21	31	185	694	694
TRANSIT						
Work	601	0	35	530	1520	1520
Non-work	125	63	63	94	750	750
Total	626	63	98	624	2270	2270
PEDESTRIAN						
Work	46	0	3	41	116	116
Non-work	33	16	16	24	196	196
Total	79	16	19	65	312	312

TABLE III.1.8
PROJECT TRIP DISTRIBUTION

<u>Direction</u>	<u>Percent</u>
Northeast	14
North	13
Northwest	9
West	15
Southwest	10
Southeast	35
Boston Proper	4
Total	100

the site are shown in Figure III.1.7. Once travel routes are determined, site generated traffic was assigned to the 1994 No-Build volumes. The resulting AM and PM peak hour traffic volumes are shown in Figures III.1.8 and III.1.9.

As shown in Tables III.1.9 and III.1.10, the addition of project-generated traffic does not significantly impact the 1994 Levels of Service at any of the study intersections during the morning peak hour. The only change in operating conditions will occur at the intersection of Franklin Street and Devonshire Street where the LOS will drop from B to C. This condition is a direct effect of the relocation of all garage traffic to Hawley Street from the current exit on Arch Street. Similarly, all traffic entering the garage will do so at

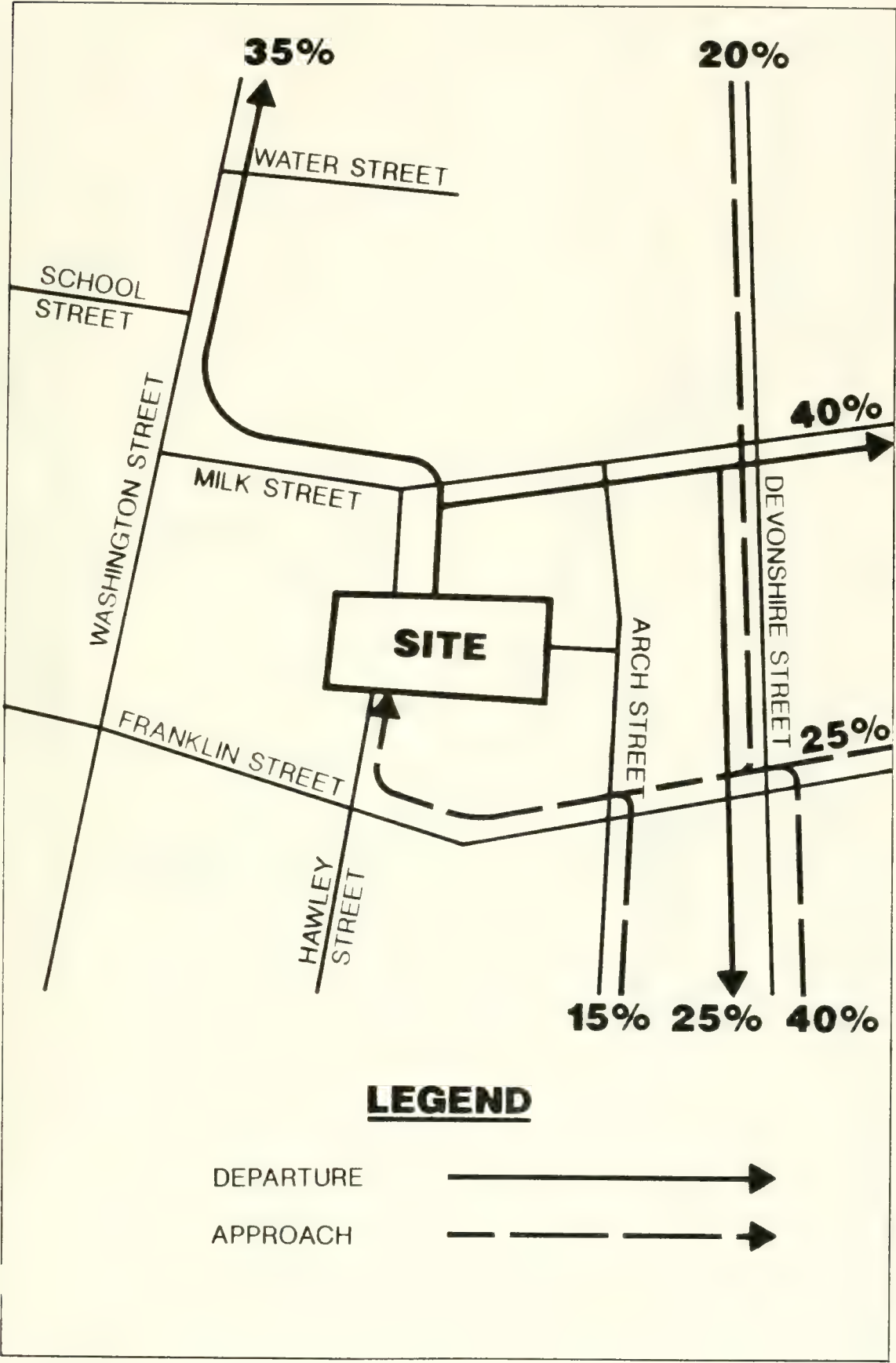


Figure III.1.7 Travel Routes

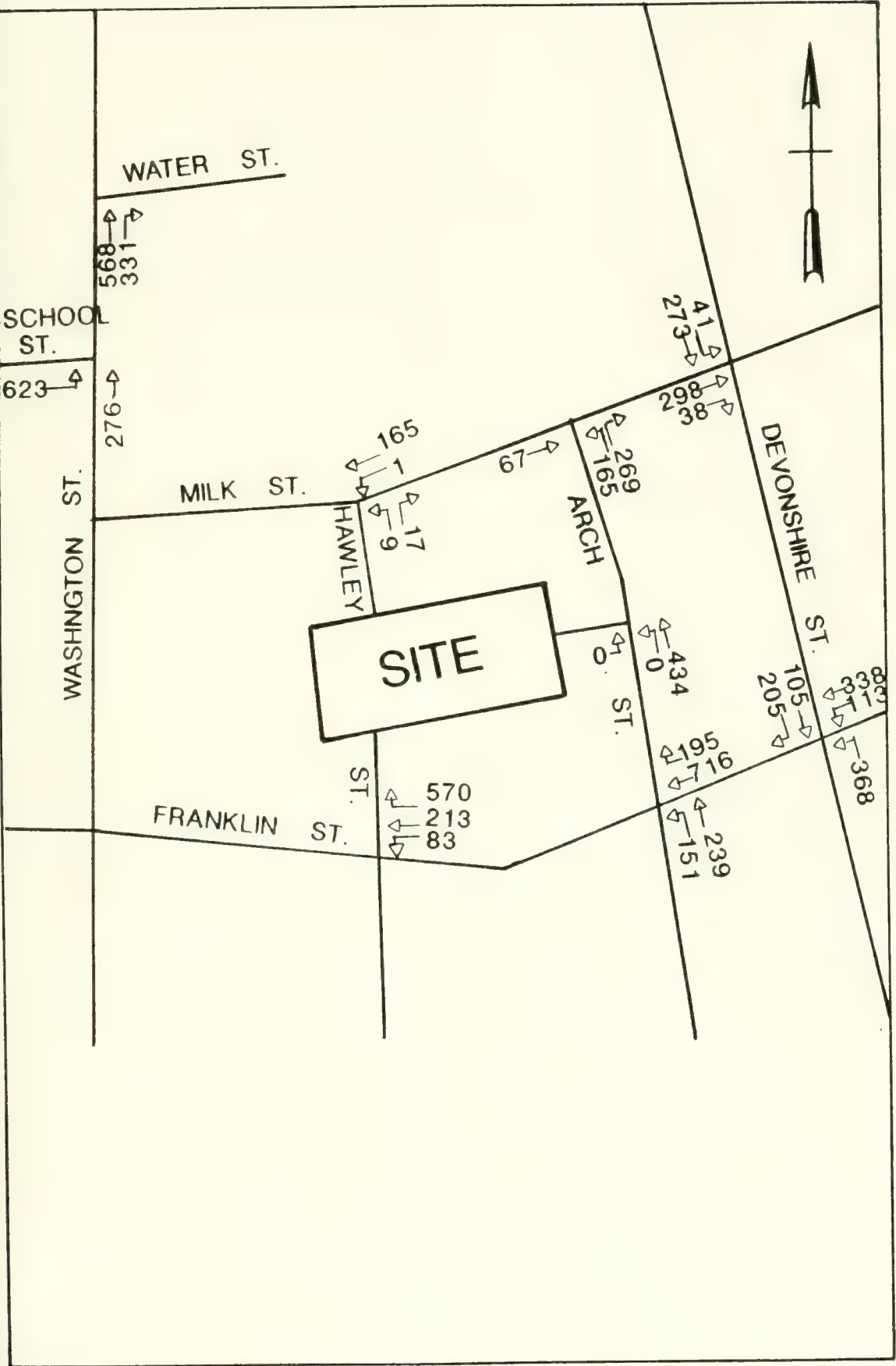


Figure III.1.8 1994 Build AM Peak Hour Volumes

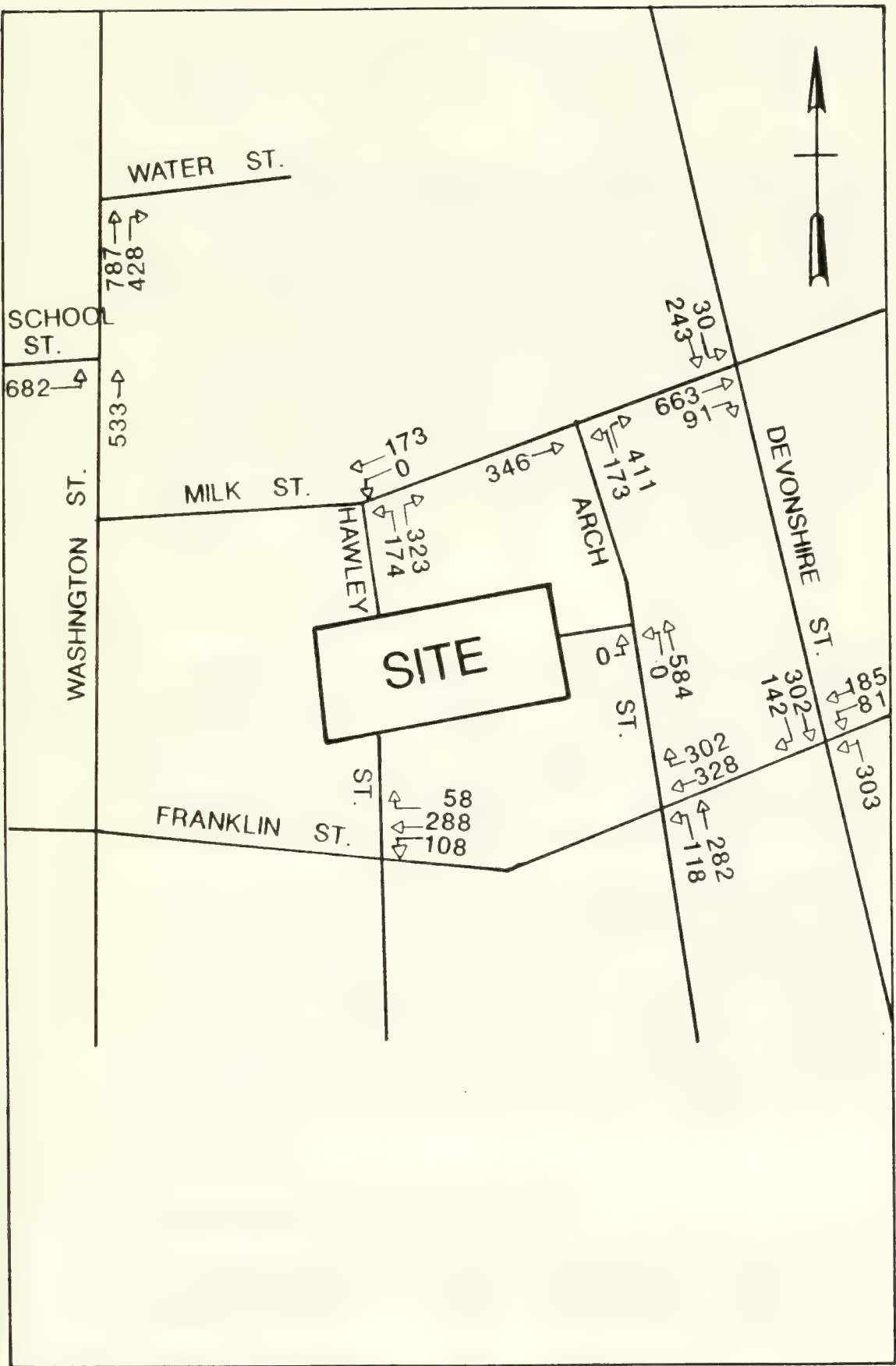


Figure III.1.9 1994 Build Peak Hour Volumes

Hawley Street. This added traffic volume at Hawley Street and Franklin Street is not expected to impact the operations of the taxi stand located on Franklin Street, west of Hawley Street.

During the afternoon peak hour, the Level of Service for the intersections of Franklin Street/Devonshire Street and Washington Street/School Street decline from LOS B to C. The relocation of the garage exit to Hawley Street will not cause a problem at the intersection of Milk Street at Hawley Street as the Levels of Service at this location for both morning and afternoon peak hour will be an A. This condition is primarily due to the fact that there is less through traffic on Milk Street as well as less left turn traffic from the site as compared to the existing entrance/exit off Arch Street. Although the LOS E condition at the intersection of Milk Street and Arch Street during the afternoon peak hour remains unchanged, the fact that site traffic will use Milk Street under Option A will reduce the vehicle queue length on Arch Street.

1.3.5. Delivery Vehicle Facility

The existing building has a below grade loading area which measures approximately 72'X 100' and provides five (5) loading/unloading bays. The facility currently services about 12 - 14 delivery trucks (24 to 28 trips) a day. The facility is used primarily by Woolworth, as well as the on-site restaurants. Although a bay exists for use by Lauriat's, most deliveries to this store are by smaller UPS-type trucks which park on Franklin Street.

Based upon existing demand, as well as the proposed building's use, the existing loading facility has sufficient capacity to accommodate the need of the proposed Forty Franklin project. In addition, the proponent will encourage all tenant delivery vehicles (with the exception of courier services) to use the off-peak hours which include 7:00 AM - 10:00 AM and 3:00 PM - 6:00 PM weekdays and 1:00 PM - 4:00 PM on Saturdays. The loading area may also be made available on a 24-hour daily by appointment if necessary to encourage off-hour deliveries.

1.4. Measures to Mitigate Impacts

The above analyses indicate that Forty Franklin (Option A) will generate approximately 240 trips during the morning peak hour and approximately 216 trips during the

TABLE III.1.1.9

OPERATING CONDITIONS

AM PEAK HOUR

Signalized Intersection	EXISTING		1994 NO-BUILD		1994 BUILD	
	Delay (1)	LOS (2)	Delay	LOS	Delay	LOS
Washington St./School St.	8.79	B	9.44	B	9.69	B
Devonshire St./Arch St.	7.98	B	8.65	B	11.63	B
Devonshire St./Franklin St.	10.80	B	11.36	B	15.12	C
Franklin St./Arch St.	8.92	B	9.07	B	10.04	B
Unsignalized Intersection	R.C. (3)	LOS	R.C.	LOS	R.C.	LOS
Milk St./Arch St.						
- All turns from Arch St.	560	A	550	A	550	A
Arch St./Garage						
- Left from Arch St.	400	A	7400	A	NCM	
- All from Garage	358	B	349	B		
Hawley St./Milk St.						
- All from Hawley St.	NCM (4)		NCM		400	A
Washington St./ Water St.	NCM		NCM		NCM	
Franklin St./Hawley St.	NCM		NCM		NCM	

Notes: (1) Delay = Delay time per vehicle in seconds

(2) LOS = Level of service

(3) R.C. = Reserve Capacity

(4) NCM = No Critical Movements

TABLE III.1.1.10

OPERATING CONDITIONS

PM PEAK HOUR

Signalized Intersection	EXISTING		1994 NO-BUILD		1994 BUILD	
	Delay	LOS	Delay	LOS	Delay	LOS
Signalized Intersection	10.77	B	14.72	B	24.36	C
	9.70	B	10.56	B	13.70	B
	6.86	B	9.12	B	15.71	C
	8.87	B	9.02	B	9.12	B
Unsignalized Intersection						
<hr/>						
Milk St./Arch St.	134	D	97	E	89	E
- All from Arch st.						
Arch st./Garage	400	A	400	A	NCM	
- Left from Arch St.	92	E	69	E		
- All from Garage						
Haley St./Milk St.	NCM		NCM		400	A
- All from Hawley St.						
Franklin St./ Hawley St.	NCM		NCM		NCM	
Washington St./Water St.	NCM		NCM		NCM	

afternoon peak hour. Intersection capacity analyses were conducted under three scenarios (1989 Existing, 1994 No-Build and 1994 Build - Option A). Results showed that all intersections within the study area have adequate capacity to accommodate the added traffic due to the construction of the project. The Levels of Service at all intersections analyzed will remain at LOS C or above under the Build scenario, except at the intersection of Milk Street and Arch Street which will operate at LOS E under both No-Build and Build Scenarios.

The most significant traffic mitigation measure to be implemented in connection with the project is that the garage exit will be relocated to Hawley Street off Milk Street. Traffic leaving the site will use Milk Street instead of Arch Street. As a result, traffic volumes as well as vehicular queue lengths on Arch Street at this intersection will be significantly lower although the Level of Service will remain at LOS E.

The above analyses were based on the assumption that 65% of the people travelling to and from the site will use the public transportation system rather than driving their own vehicles. Therefore, the traffic mitigation plan proposed by the proponent also includes working with the future tenants to establish a Public Transportation Assistance Program. This program will have the purpose of promoting public transportation use and will involve selling "T" passes on-site. Financial incentives may also be used to encourage higher transit use by subsidizing employee "T" passes. In addition, a car-pool program will also be set up among future tenants to reduce site traffic impact to the maximum extent.

2.0 PUBLIC TRANSPORTATION

2.1 Existing Conditions

Forty Franklin is located at the new Franklin Street entrance to the MBTA's Downtown Crossing Station on the Orange and Red Lines. It is within walking distance to Park Street Station (Green Line) and State Street Station (Blue and Orange Lines). In addition, the commuter rail system can be reached via the Orange Line (North Station to the north and Back Bay to the south and west), Red Line (South Station) or by walking. Forty Franklin is also one block from the MBTA Bus Stop on Washington Street in front of Woolworth's. This stop serves provides service to the City's neighborhoods. The MBTA's express commuter bus services to the suburbs are located nearby at the intersection of Franklin and Federal Streets.

2.1.2 Existing Capacity

There are two methods available to determine peak hour loading capacity of a subway line. One method is determining the "design" capacity, the manufacturer's specifications for the maximum number of passengers, both seated and standing, that each car can accommodate. This analysis assumes that potential passengers will wait for a less crowded train if the car is full. The assumption is that a car at "design" capacity has all seats occupied with 2.5 square feet of space available for standees.

The other, and more realistic, analysis is to determine the "crush", or full load capacity of each cars. In this scenario, passengers will continue to board until impossible. According to an analysis prepared for the Boston Crossing Draft Project and Environmental Impact Report (Bruce Campbell & Associates), each transit car on the four MBTA rapid transit lines have design and crush capacities shown in Tables III.2.1 and III.2.2.

TABLE III.2.1
RAPID TRANSIT CAPACITIES

<u>LINE</u>	<u>DESIGN LOAD</u>	<u>CRUSH LOAD</u>
Orange	155	197
Red	180	244
Blue	110	155
Green	165	180

TABLE III.2.2
EXISTING WEEKDAY TRANSIT CAPACITIES

<u>Line</u>	<u>Cars/</u> <u>Train</u>	<u>Headway/</u> <u>Minutes</u>	<u>Trains/</u> <u>Hour</u>	<u>Cars/</u> <u>Hour</u>	<u>Crush Load</u> <u>Car</u>	<u>Capacities</u> <u>Hour</u>
ORANGE	4	4	8	32	197	6,304
	6	4	7	42	197	8,274
						14,578
RED	4	3	16	64	244	15,616
	6	3	4	24	244	5,856
						21,472
GREEN	2	1.5	32	64	180	11,520
	1	1.5	8	8	180	1,440
						12,960
BLUE	4	4	15	60	155	9,300

2.2 Future Conditions

Numerous improvements to the MBTA system that will further enhance the attractiveness and capacity of public transportation have recently been completed, are in progress or are planned for the future. The following is a list of these improvements:

- o Platform lengthening on the Red and Orange Lines allows six-car trains rather than four-car trains, increasing capacity by one-third. Similar platform lengthening is now under study for the Blue Line.
- o Track and signal improvements are in progress to increase operating efficiencies and safety on all rail transit lines.
- o Station modernization is nearing completion for all downtown stations making them more visually inviting and comfortable.
- o Track replacement and renewal is underway on all rail transit lines as equipment levels increase.
- o South Station is being reconstructed as a major multi-modal transportation center that will eventually accommodate commuter rail, AMTRAK, MBTA, and private commuter and interstate buses.
- o North Station will be rebuilt, and the platform

capacity will be improved and enlarged as construction of the new Boston Garden arena occurs above the Station.

- o Commuter rail lines are being extended and additional facilities at commuter rail stations are under development or study. Also being planned is the restoration of the Old Colony commuter rail system on the South Shore, which was once one of the most heavily patronized set of commuter rail lines.

The MBTA system's capacity will continue to grow over the next decades as the improvements described and similar improvements come on-line. Operational changes such as longer trains and reduced headways (more trains per hour) can also be implemented to further improve capacity. Better use of existing capacity can be made by "peak spreading". Options include the use of staggered working hours and flex-time to avoid overcrowding platforms and cars up to "crush load" conditions. Often, the "crush load" capacity is caused by sharp spikes in demand due to common quitting and closing times in offices and stores.

Table III.2.3 projects future rail transit ridership based on estimates of: (1) ridership generated by background development, including the presently planned developments other than Forty Franklin and (2) the ridership estimated to result from the addition of the Forty Franklin project.

Table III.2.4 shows estimates of the number of riders using each rapid transit line, as well as other modes of public transportation. The percentages were based on previous studies that determined the percent of downtown transit users by mode, line and direction.

The weekday peak hour projections were utilized in Table III.2.5 to determine 1994 demand and available capacity. The volume/capacity ratios apply to the points on each rail transit system line where MBTA studies have shown maximum loadings. The 1988 volumes at these locations are shown in the Existing column. The existing and projected future volumes were compared with capacities determined earlier (Table III.2.2), and the volume/capacity ratios calculated.

The tables indicate that the combination of transit ridership from the planned background development and the proposed project will not exceed available capacity. The weekday volume to capacity (V/C) ratios under the Build

TABLE III.2.3
BACKGROUND DEVELOPMENT AND FORTY FRANKLIN
TRANSIT TRIP GENERATION

A. NO-BUILD CONDITION

<u>Other Projects</u>	<u>Weekday Peak (PM)</u>
1. 110-120 Tremont Street	420
2. Pavilion at Park Street	158
3. The Parkside Projects	34
4. 90 Tremont Street	286
5. Parcel R3-R3A	31
6. One Bowdoin Square	185
7. 64-74 Franklin Street	124
8. Boston Crossing	2,083
9. 146 Boylston Street	24
10. 73 Tremont Street	345
11. 45 Province Street	236
12. 125 Summer Street	501
13. Parcel C-2	56
14. 295 Devonshire	34
15. Don Bosco	110
16. Commonwealth Center	1,685
17. Kingston/Bedford	980
TOTAL NO-BUILD	7,292

B. BUILD CONDITION

Forty Franklin	722
TOTAL BUILD	8,014

TABLE III.2.4
PEAK HOUR TRANSIT TRIPS BY MODE, LINE, DIRECTION

<u>MODE/LINE</u>	<u>PERCENT</u>	<u>NO-BUILD</u>	<u>BUILD</u>
Red - North	16	1,167	1,282
Red - South	18	1,312	1,443
Orange - North	8	583	641
Orange - South	11	802	882
Blue - North	10	729	801
Green - West	16	1,167	1,282
Green - East	2	146	160
Commuter Rail - North	4	292	320
Commuter Rail - South	5	365	401
Local Bus	8	583	641
Express Bus	2	146	160
TOTAL		7,292	8,014

condition on the various lines range from a low of .43 on

the Red Line northbound to a High of .94 on the Brigham Circle Green Line outbound. The Green Line branches clearly are the lines most crowded and most in need of additional capacity. To address the problem, the MBTA has recently begun to assign three-car trains to Green Line branches that experience the highest V/C ratios in the peak hour.

TABLE III.2.5
PEAK HOUR TRANSIT CAPACITY ANALYSIS

<u>Line/Station/Destination</u>		PEAK HOUR RIDERSHIP					
		1988(1)		NO- BUILD		BUILD	
		V/C		V/C		V/C	
<u>RED LINE</u>							
Andrew	Ashmont	5,400	.61	5,983	.68	6,121	.69
Andrew	Braintree	7,350	.58	7,934	.63	8,071	.64
Charles	Alewife	7,990	.37	9,157	.43	9,272	.43
<u>ORANGE LINE</u>							
Back Bay	Forest Hills	7,650	.52	8,452	.58	8,532	.59
Haymarket	Oak Grove	8,900	.61	9,483	.65	9,782	.67
<u>GREEN LINE</u>							
Arlington	Boston College	2,630	.77	2,931	.86	2,963	.87
Arlington	Cleveland Circ	3,000	.78	3,338	.87	3,372	.88
Arlington	Riverside	3,100	.79	3,450	.88	3,485	.89
Arlington	Brigham Circle	1,550	.84	1,728	.94	1,742	.94
Science Pk	Lechmere	1,380	.75	1,526	.83	1,540	.84
<u>BLUE LINE</u>							
Maverick	Wonderland	6,250	.67	6,979	.75	7,051	.76

SOURCES: (1) Bruce Campbell & Associates, Boston Crossing DPIR, May, 1989. Table IV-33.

These ratios will decline in the 1990's as the MBTA increases capacities on all lines. The Red and Orange Lines can now operate with six-car rather than four-car trains due to a program of platform lengthening. A similar program is now under study by the MBTA to lengthen platforms on the Blue Line so that it may also accommodate six-car trains. The Green Line branches, which have been operating with one- and two-car trains, are beginning to use three-car trains as the Green Line fleet grows and operations are modified to respond to peak demand conditions. Table III.2.5 is intended to show the estimates of peak hour capacities of the various lines if all trains on all lines were operated with the maximum possible number of cars at current frequencies.

The estimates assume "design" load car capacities and lengthening of the Blue Line platforms.

2.3 Mitigation Measures

The impression that the subway system is reaching capacity results from trains in the peak hour filling to crush load capacity. The peaking periods last less than an hour with trains operating with ample standee room for the balance of the peak hour. To alleviate the peaking problem, tenants will be encouraged to adopt staggered operating hours or flex-time employee arrival and departure arrangements to spread demand more evenly over the peak hour. This would reduce the "crush" load peaking problem while better utilizing surplus capacity in the remainder of the peak hour.

3.0 PEDESTRIAN CIRCULATION

3.1 Existing Conditions

The site is located in the heart of Downtown Boston, with it's most easterly portion being a part of the Financial District as well as serving a link to the Downtown Crossing area. The site is well served by public transportation, with immediate access to the MBTA rapid transit network, and several local and express bus networks. Due to heavy pedestrian volumes, narrow sidewalks and automobile conflicts, Washington Street between Temple Place and Franklin Street, Winter Street/Summer Street between Tremont Street and Hawley Street and Franklin Street between Washington Street and Hawley Street were closed to automobile traffic in autumn 1978. However, taxis, commercial vehicles, busses and vehicles with handicapped license plates (Franklin Street only) are allowed access.

To assess pedestrian conditions in the impact area, an inventory was conducted to compile the following information: total sidewalk width, effective sidewalk width, MBTA bus stops and station entrances/exits, obstructions, pedestrian volumes and roadway signalization.

The following is a description of the sidewalks and intersections considered for analysis in this study:

- o Washington Street in front of Woolworth is approximately 30 feet in width, 16 feet of which is often used by outdoor retailers, allowing 14 feet of total pedestrian walkway width available. However street furniture (light posts, newsstands and trash barrels) reduce the effective sidewalk width to about 9 1/2 feet. Also noted were the MBTA bus stops with loading and unloading passengers hindering the free flow of pedestrians.
- o Washington Street/Franklin Street/Bromfield Street is an unsignalized intersection located just west of the project site. Crosswalks are designated only on the north and east approaches. The MBTA Orange Line kiosk and Filene's Park are on the southeast corner of the intersection and subject to heavy pedestrian traffic.
- o Franklin Street/Hawley Street is an unsignalized intersection without visible designated crosswalk locations. No vehicle traffic is allowed west of the intersection except for taxis and commercial

vehicles.

- o Franklin Street/Arch Street is a signalized intersection located just southeast of the project site. However, pedestrian actuation buttons are not present. Franklin Street widens to approximately 65 feet, thus making it a long crossing distance. Construction along the northeast corner of the intersection forces pedestrians to utilize Franklin Street as a walkway.

To evaluate pedestrian flows in terms of sidewalk and cross walk capacity, midblock and intersection pedestrian counts were conducted for AM (7:00 - 9:00), mid-day (11:00 AM - 1:00 PM) and PM (4:00 - 6:00) peak periods at locations along Washington Street, Franklin Street, Hawley Street and Arch Street in the immediate vicinity of the site. The results of these counts are presented in Figures III.3.1 through III.3.3. Copies of the individual count summaries for each location are included in Appendix C.

3.2 Qualitative Analysis Procedure

Pedestrian circulation has been analyzed at the two unsignalized crosswalks in accordance with methods taken from Urban Space for Pedestrians (Pushkarow and Zupan), MIT Press, 1975). The signalized crosswalk at Franklin Street/Arch Street, and the walkway along Washington Street in front of Woolworth were analyzed by methodologies obtained from the 1985 Highway Capacity Manual (HCM), (Special Report 207 by the Transportation Research Board, National Research Council, Washington D.C.).

The ability of a crosswalk or walkway to handle a given volume of pedestrian flow is usually controlled by the width of sidewalk/walkway, total pedestrian volume and the available given time allotted to pedestrians at signalized intersections.

The operations may be categorized rather broadly by the levels of service provided in HCM and Urban Space for Pedestrians. The manuals have defined discrete Levels of Service to describe actual pedestrian flow operating conditions ranging from free flow (A) to severely congested or jammed (F). (See Figure III.3.4)

Pedestrian flow is subject to wide variability on a minute-by-minute basis, and general flows of pedestrians as well as the effects of platooning of pedestrian flows

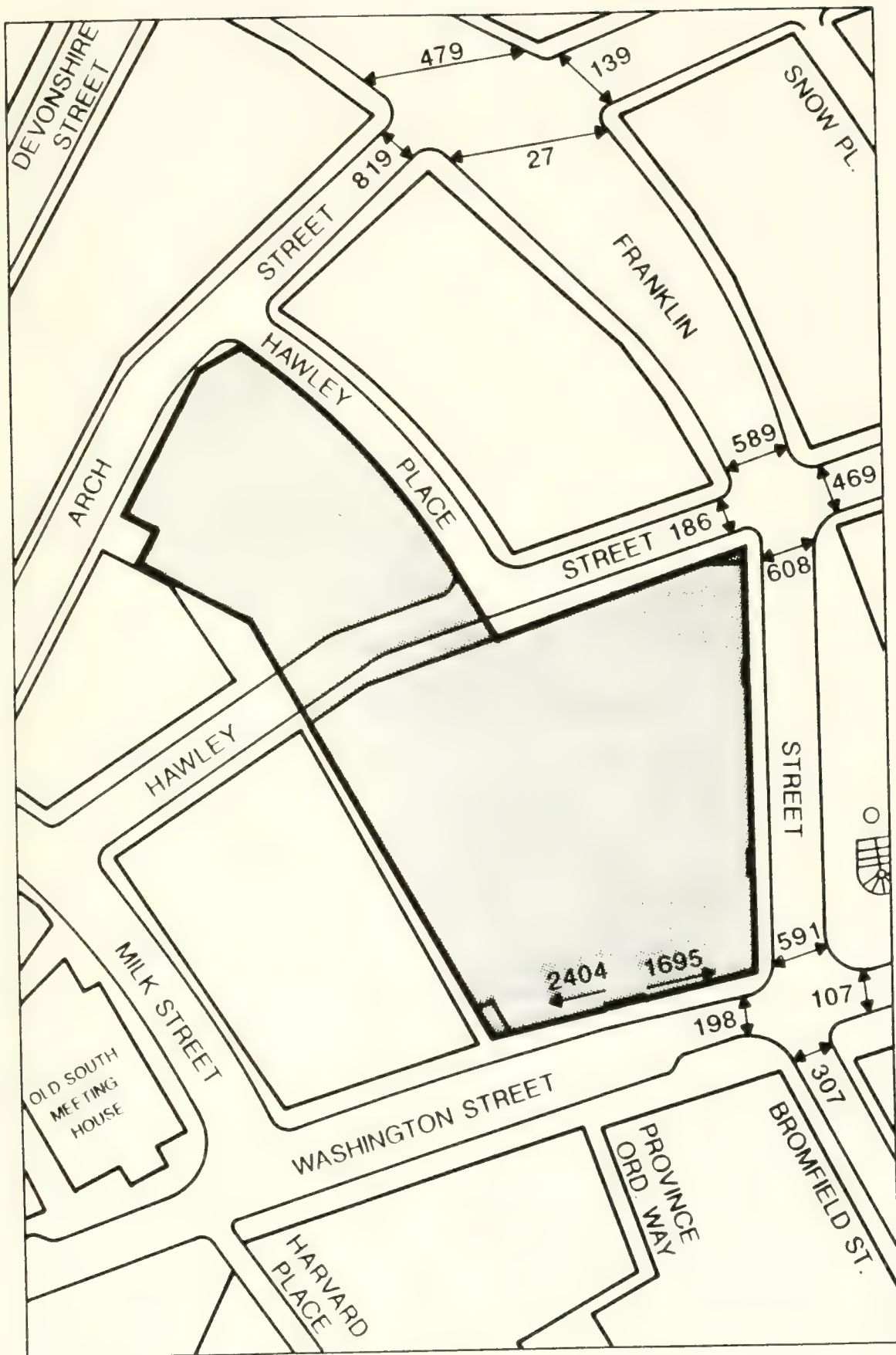


Figure III 3.1

Existing AM Pedestrian Volumes

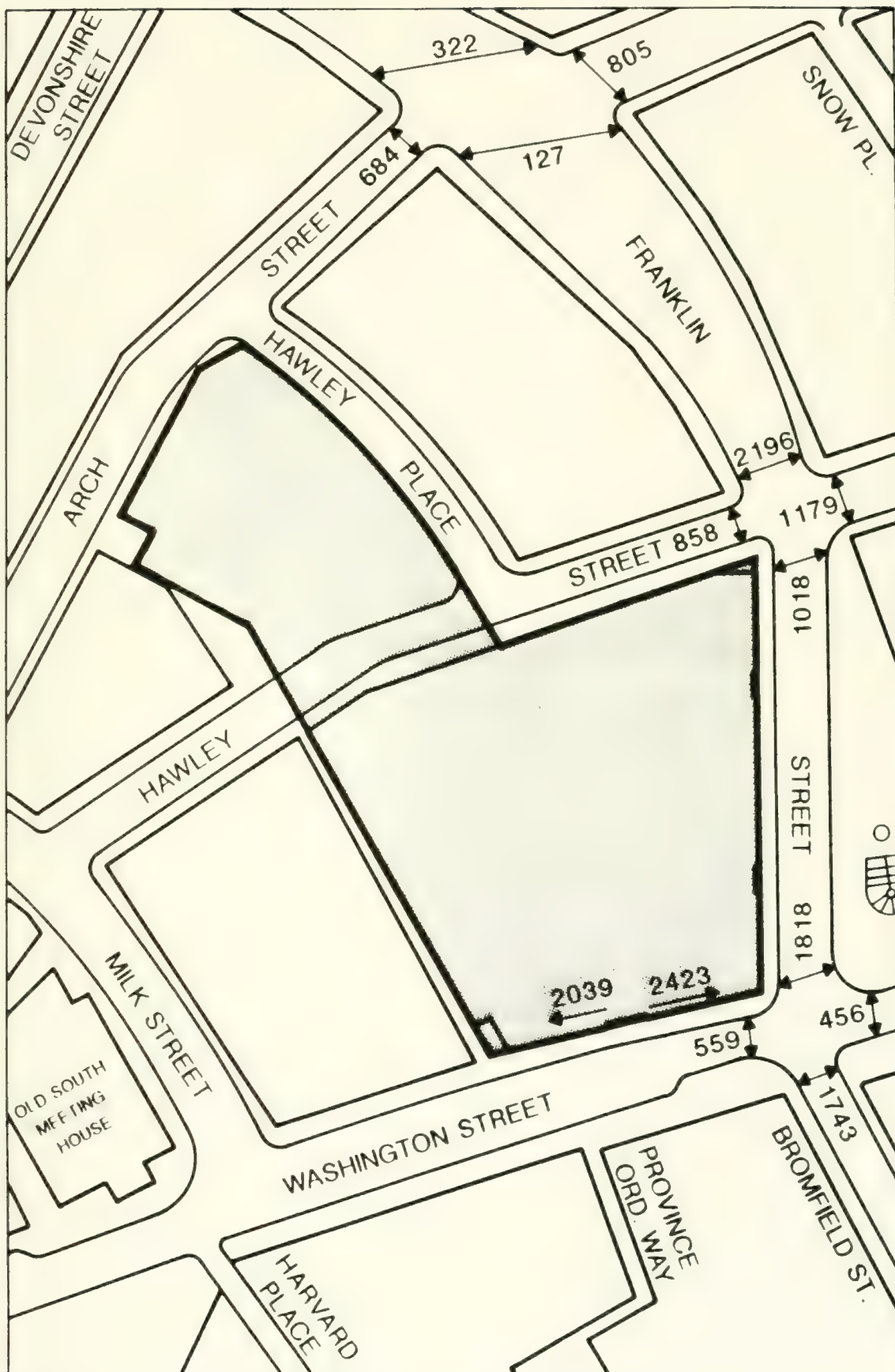


Figure III 3.2 Existing Mid-day Pedestrian Volumes

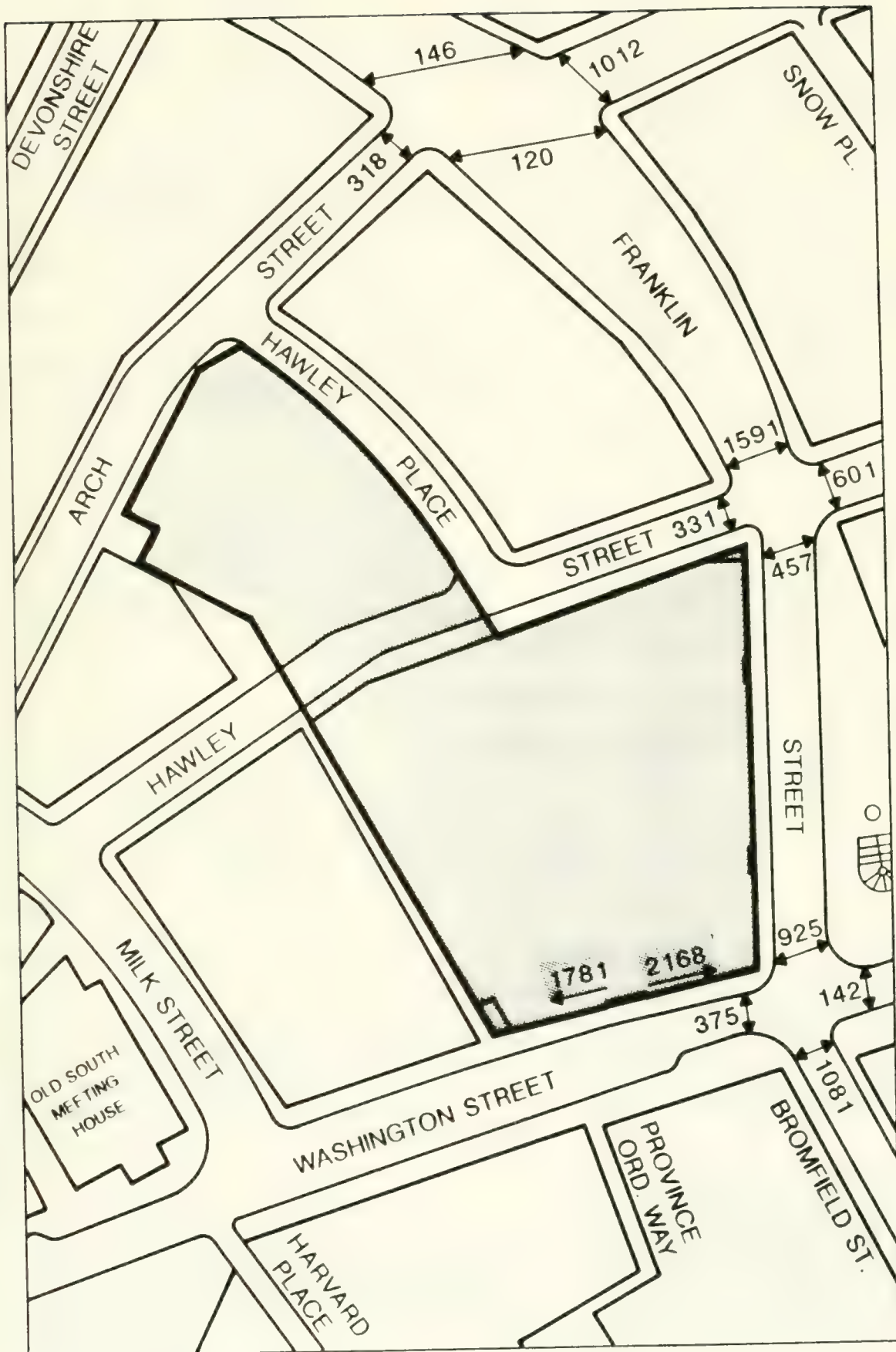
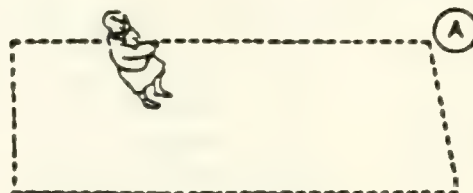


Figure III 3.3 Existing PM Pedestrian Volumes

LEVEL OF SERVICE A

Pedestrian Space: $\geq 130 \text{ sq ft/ped}$ Flow Rate: $\leq 2 \text{ ped/min/ft}$

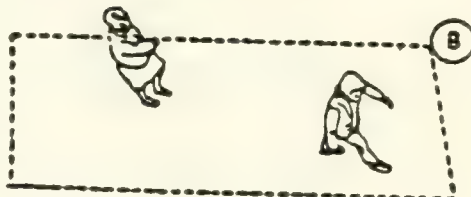
At LOS A, pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.



LEVEL OF SERVICE B

Pedestrian Space: $\geq 40 \text{ sq ft/ped}$ Flow Rate: $\leq 7 \text{ ped/min/ft}$

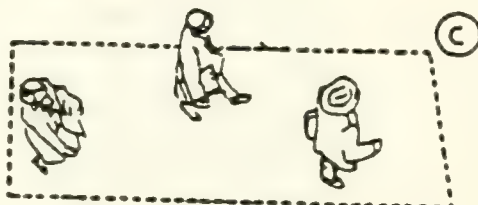
At LOS B, sufficient area is provided to allow pedestrians to freely select walking speeds, to bypass other pedestrians, and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians, and to respond to their presence in the selection of walking path.



LEVEL OF SERVICE C

Pedestrian Space: $\geq 24 \text{ sq ft/ped}$ Flow Rate: $\leq 10 \text{ ped/min/ft}$

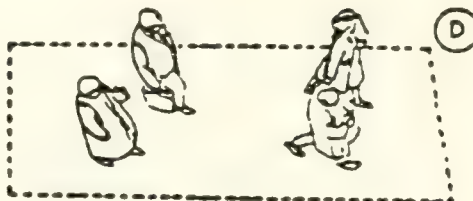
At LOS C, sufficient space is available to select normal walking speeds, and to bypass other pedestrians in primarily unidirectional streams. Where reverse-direction or crossing movements exist, minor conflicts will occur, and speeds and volume will be somewhat lower.



LEVEL OF SERVICE D

Pedestrian Space: $\geq 15 \text{ sq ft/ped}$ Flow Rate: $\leq 15 \text{ ped/min/ft}$

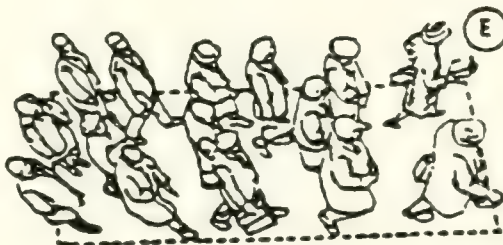
At LOS D, freedom to select individual walking speed and to bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflict is high, and its avoidance requires frequent changes in speed and position. The LOS provides reasonably fluid flow; however, considerable friction and interaction between pedestrians is likely to occur.



LEVEL OF SERVICE E

Pedestrian Space: $\geq 6 \text{ sq ft/ped}$ Flow Rate: $\leq 25 \text{ ped/min/ft}$

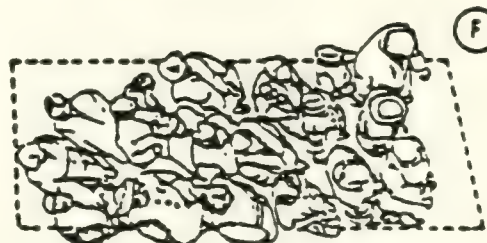
At LOS E, virtually all pedestrians would have their normal walking speed restricted, requiring frequent adjustment of gait. At the lower range of this LOS, forward movement is possible only by "shuffling." Insufficient space is provided for passing of slower pedestrians. Cross- or reverse-flow movements are possible only with extreme difficulties. Design volumes approach the limit of walkway capacity, with resulting stoppages and interruptions to flow.



LEVEL OF SERVICE F

Pedestrian Space: $\leq 6 \text{ sq ft/ped}$ Flow Rate: variable

At LOS F, all walking speeds are severely restricted, and forward progress is made only by "shuffling." There is frequent, unavoidable contact with other pedestrians. Cross- and reverse-flow movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristic of queued pedestrians than of moving pedestrian streams.



must be considered. Short-term fluctuations are present in most unregulated pedestrian traffic flows due to the random arrivals of pedestrians. Random fluctuations are further exaggerated by the interruption of flow and queue formations caused by traffic signals. Transit facilities can also create added surges in demand by producing large groups of pedestrians in short time intervals, followed by periods during which little or no flow occurs. Until they disperse, pedestrians in these types of groups move together as a "platoon". Platoons can also form if passing is impeded due to insufficient space, and faster pedestrians slow down behind slow walkers.

Utilizing the methodologies mentioned in the above manuals, the crosswalks and walkways under study have been analyzed to determine existing conditions. While all crosswalks operate under LOS A and B conditions during all three peak hours, the walkway along Washington Street in front of Woolworth functions at LOS D during the three peak periods (Table III.3.1). At this level of service, conflicts between pedestrians become apparent and individual walking speeds and ability to pass other pedestrians is restricted. However, a reasonable rate of pedestrian flow is still maintained as pedestrians have not been forced to "shuffling".

TABLE III.3.1
EXISTING PEDESTRIAN LOS

<u>CROSSWALK/DIRECTION</u>	<u>PEAK HOURS</u>		
	<u>AM</u>	<u>MID-DAY</u>	<u>PM</u>
Washington/Franklin/Bromfield			
-Bromfield Street	A	A	A
-Washington (North Side)	A	A	A
-Franklin Street	A	A	A
-Washington (South side)	A	A	A
Franklin/Hawley			
-Franklin (West side)	A	A	A
-Hawley (North side)	A	A	A
-Franklin (East side)	A	B	B
-Hawley (South side)	A	A	A
Franklin/Arch			
-Franklin (West side)	A	A	A
-Arch (North side)	B	B	A
-Franklin (East side)	B	B	B
-Arch (South side)	A	A	B
<u>WALKWAY</u>	<u>AVG WALKWAY/PLATOON</u>		
Woolworth	C/D	C/D	C/D

3.2 Probable Impacts of the Development

3.2.1 No-Build Conditions

In order to assess the magnitude and operations of the 1994 No-Build pedestrian movements within the intersection crosswalks and walkways analyzed above, peak hour volumes have been calculated and pedestrians assigned accordingly.

For this analysis, the quantification of background or No-Build pedestrian traffic (i.e., future pedestrian traffic without Forty Franklin) was based on the assessment of other specific development proposals projected to be completed by 1994, the year when Forty Franklin (Option A) is expected to be fully occupied.

Four projects in the immediate area are expected to utilize the crosswalks and walkway under analysis in this study. These projects, and the number of pedestrian trips that they will generate, are displayed in Table III.3.2.

TABLE III.3.2
BACKGROUND PEDESTRIAN TRIPS

<u>PROJECT</u>	<u>AM PEAK</u>		<u>MIDDAY</u>		<u>PM PEAK</u>	
	<u>Enter</u>	<u>Exit</u>	<u>Enter</u>	<u>Exit</u>	<u>Enter</u>	<u>Exit</u>
45 Province Street	18	4	*	*	5	17
90 Tremont Street	22	4	*	*	7	22
64-74 Franklin St.	8	1	112	112	2	8
73 Tremont Street	29	3	*	*	5	27

- * It should be noted that peak hour pedestrian trip generation rates supplied for this study by the Boston Transportation Department did not include trip rates for the mid-day peak hour. A method similar to that used in the Project Impact Report for 45 Province Street was used for the generation of future mid-day rates. Only the one adjacent project, 64-74 Franklin Street, was considered to have an effect on midday pedestrian volumes at the site. A detailed description of the methodology can be found in Appendix C.
-

Figures III.3.5 through III.3.7 show the No-Build pedestrian volumes.

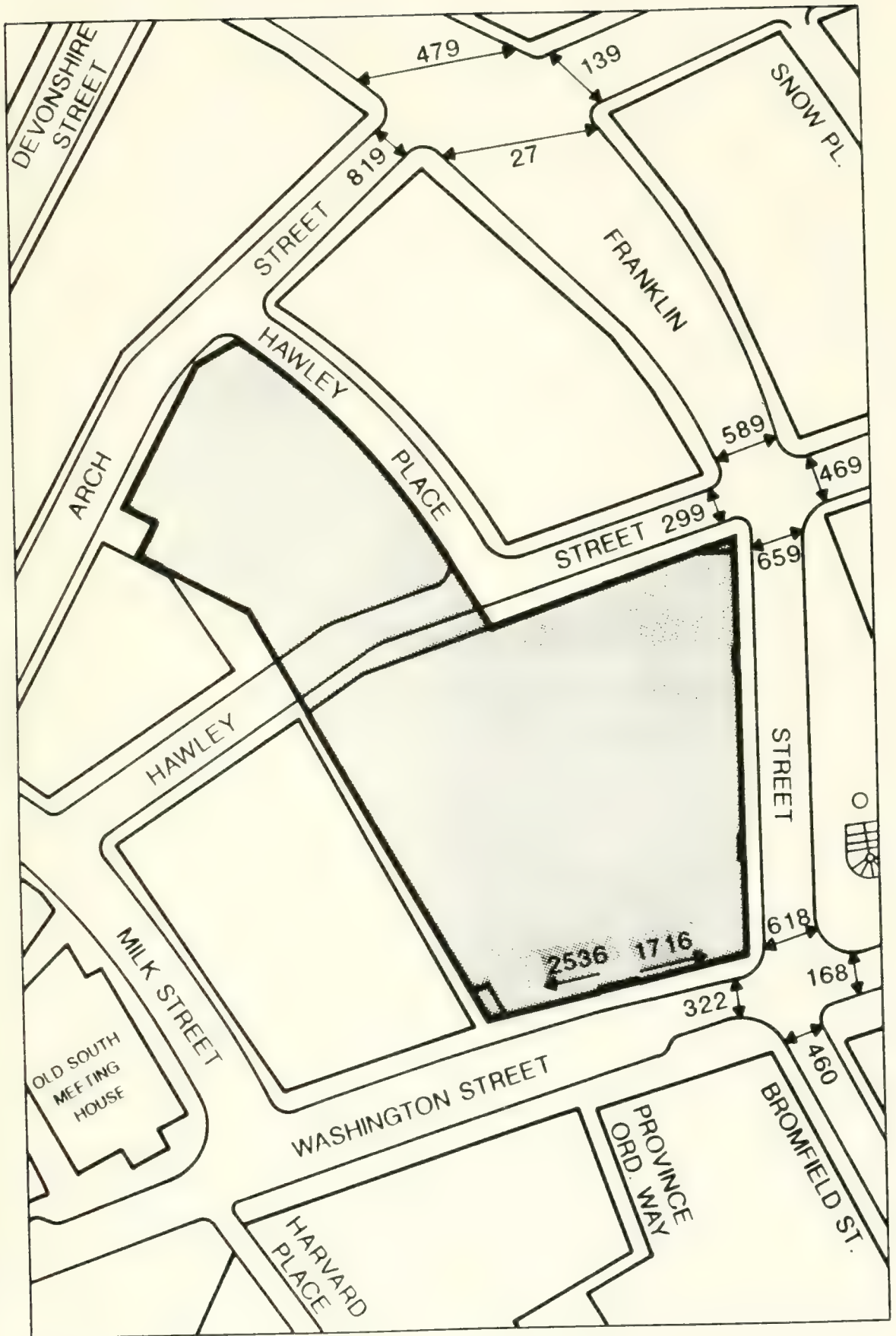


Figure III 3.5 No-Build AM Pedestrian Volumes

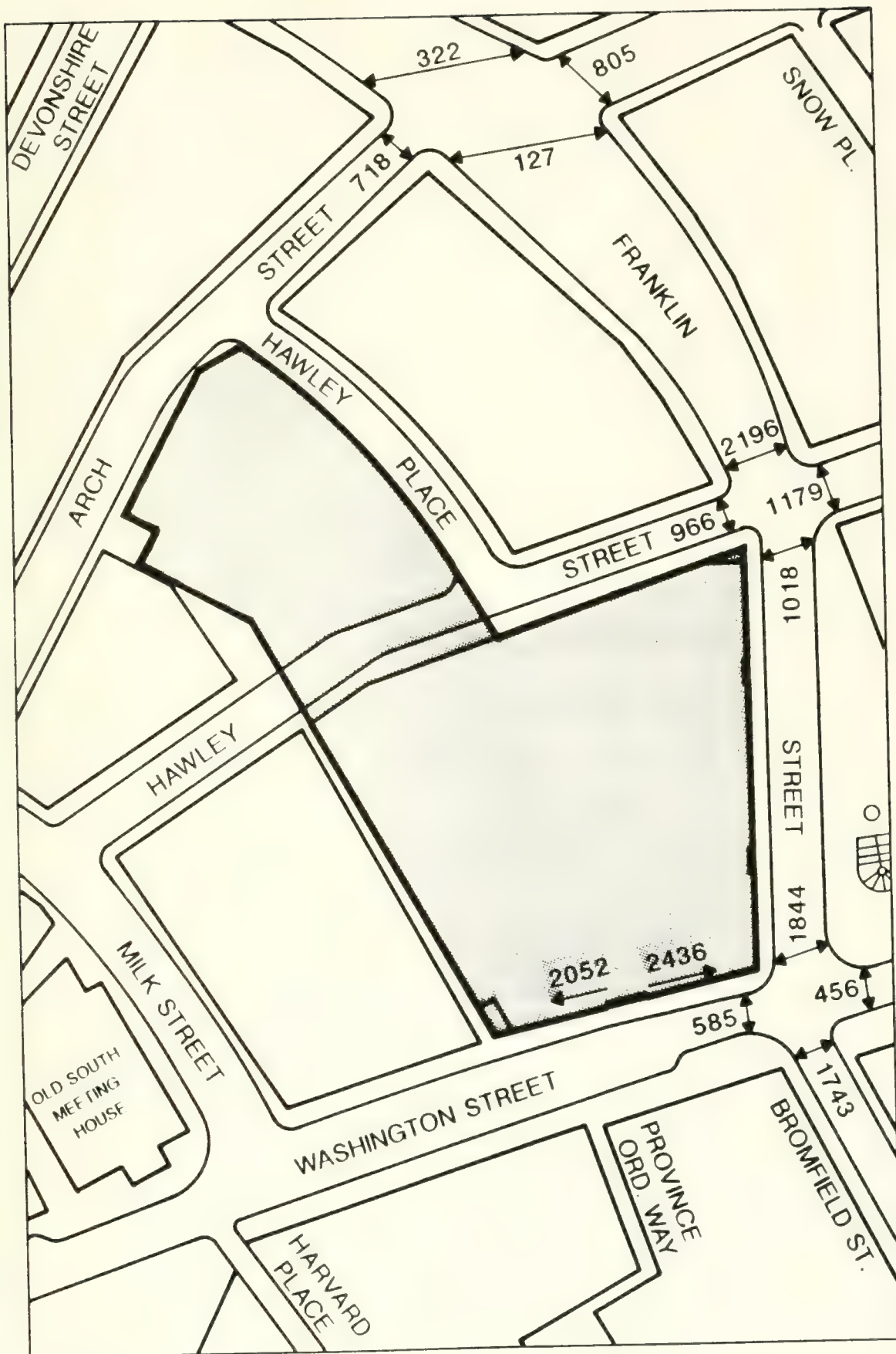


Figure III 3.6

No-Build Mid-day Pedestrian Volumes

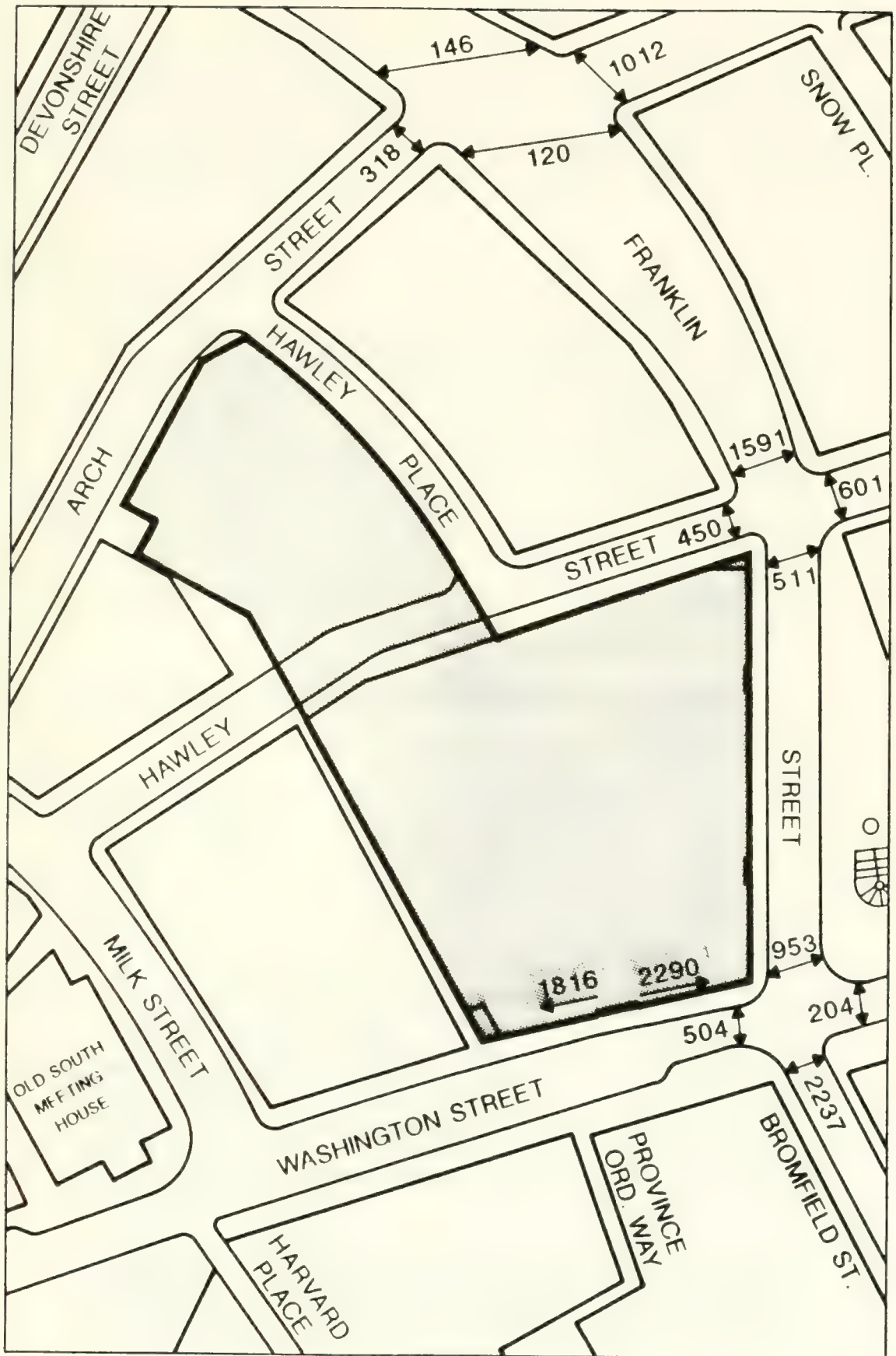


Figure III 3.7 No-Build PM Pedestrian Volumes

Utilizing the previously described analysis methodology, the No-Build operating conditions have been calculated. The results of the analysis (which is displayed in Table III.3.4.) indicate that although pedestrian volumes increase, the Levels of Service remain the same as existing levels.

3.2.2 Build Conditions

Pedestrian volumes include strictly walk trips and transit-related (i.e., walking to rapid transit stations, bus stops or the commuter rail). No vehicle related walk trips are expected since all tenant parking is located on-site and is accessible by internal elevators. Approximately 5,164 daily pedestrian trips are expected to be generated by the Forty Franklin project, with 624 of these trips being strictly walk trips (i.e., the entire trip is made by walking and no other mode of travel is used for any portion of the trip), while the remaining trips are transit related. Table III.3.3 displays the expected peak hour and daily pedestrian volumes.

TABLE III.3.3
FORTY FRANKLIN GENERATED PEDESTRIAN TRIPS

<u>TYPE OF TRIP</u>	<u>PEAK HOUR</u>			
	<u>AM</u>	<u>MIDDAY</u>	<u>EVENING</u>	<u>DAILY</u>
Walk trips	95	699	84	624
Transit trips	689	0	722	4540
Total	784	699	806	5164

The method used in the distribution of pedestrian volumes resulting from the occupation of Forty Franklin is similar to that used for the No-Build. The location of MBTA transit lines related to the site dictated avenues of travel for transit related trips. In the same manner, the distribution of walk trips considered the location of area residences in conjunction with the project site. Subsequently, the project generated pedestrian trips were added to the 1994 No-Build volumes, resulting in the Build pedestrian volumes shown in Figures III.3.8 through III.3.10.

Table III.3.4 compares the 1994 No-Build and Build Levels of Service. As shown in the table, Forty Franklin generated pedestrian volumes have little or no effect on area walkway and crosswalk operating conditions with respect to changes in Levels of Service.

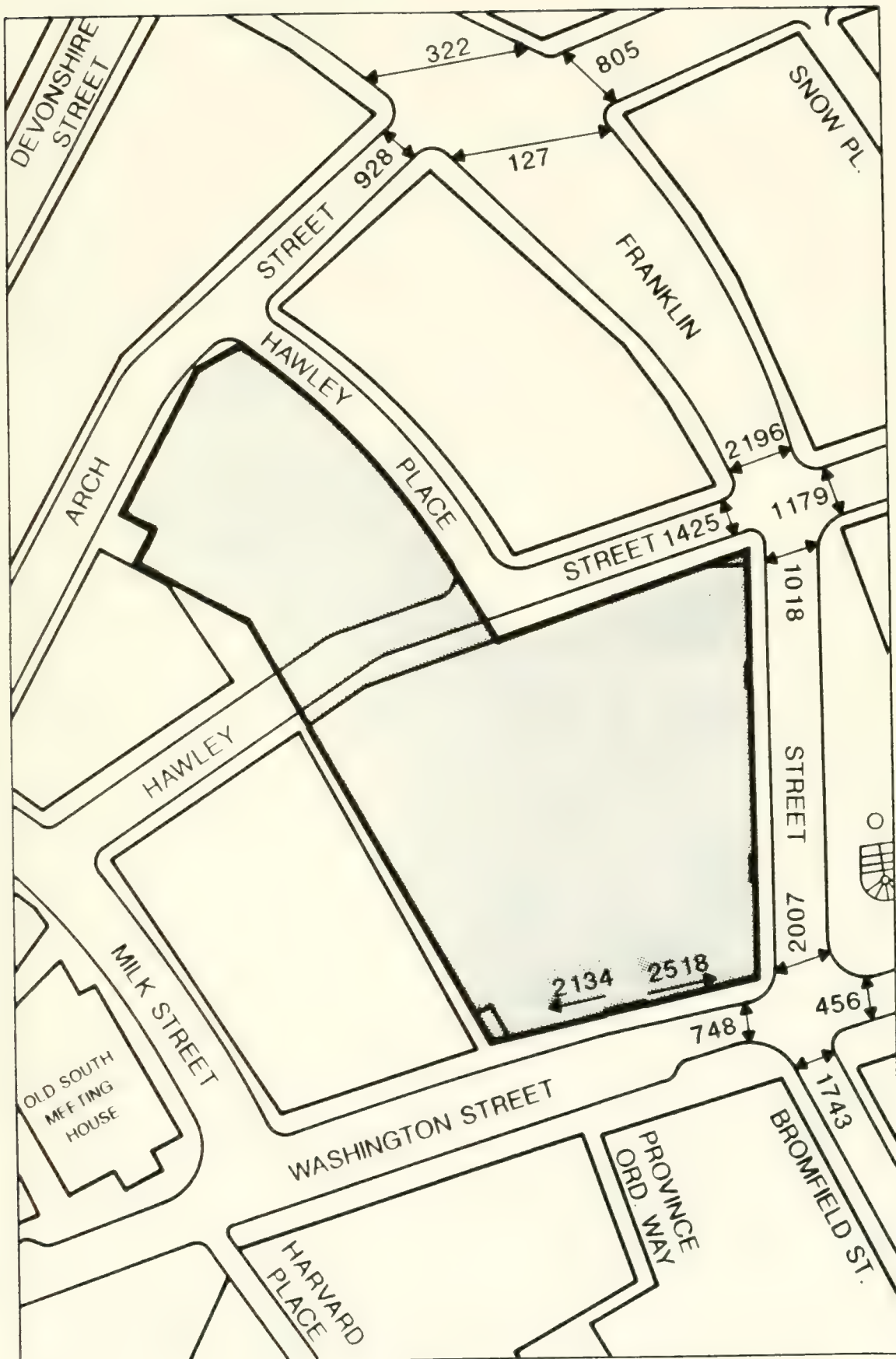


Figure III 3.9 Build Mid-day Pedestrian Volumes

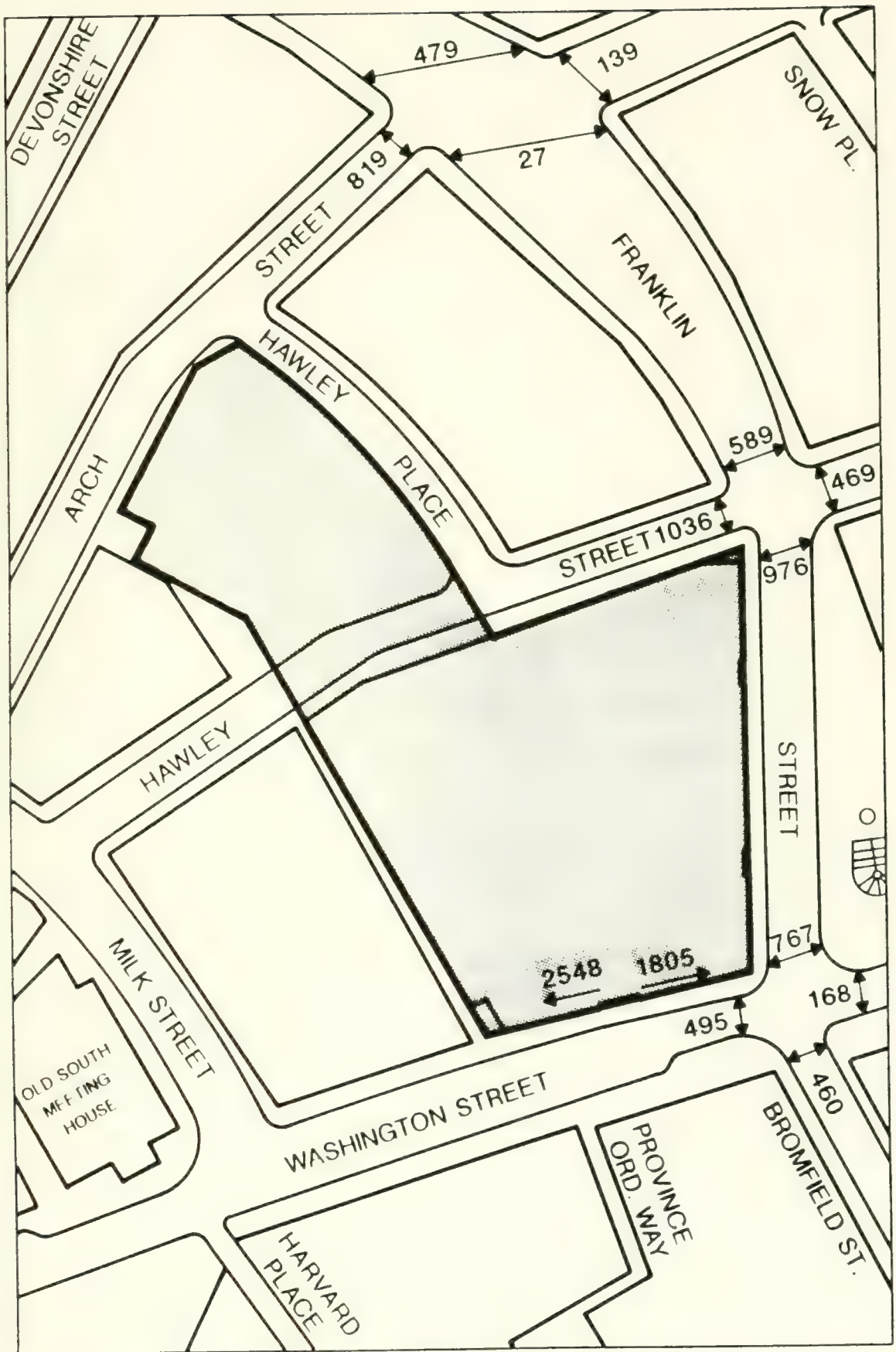


Figure III 3.8 Build AM Pedestrian Volumes

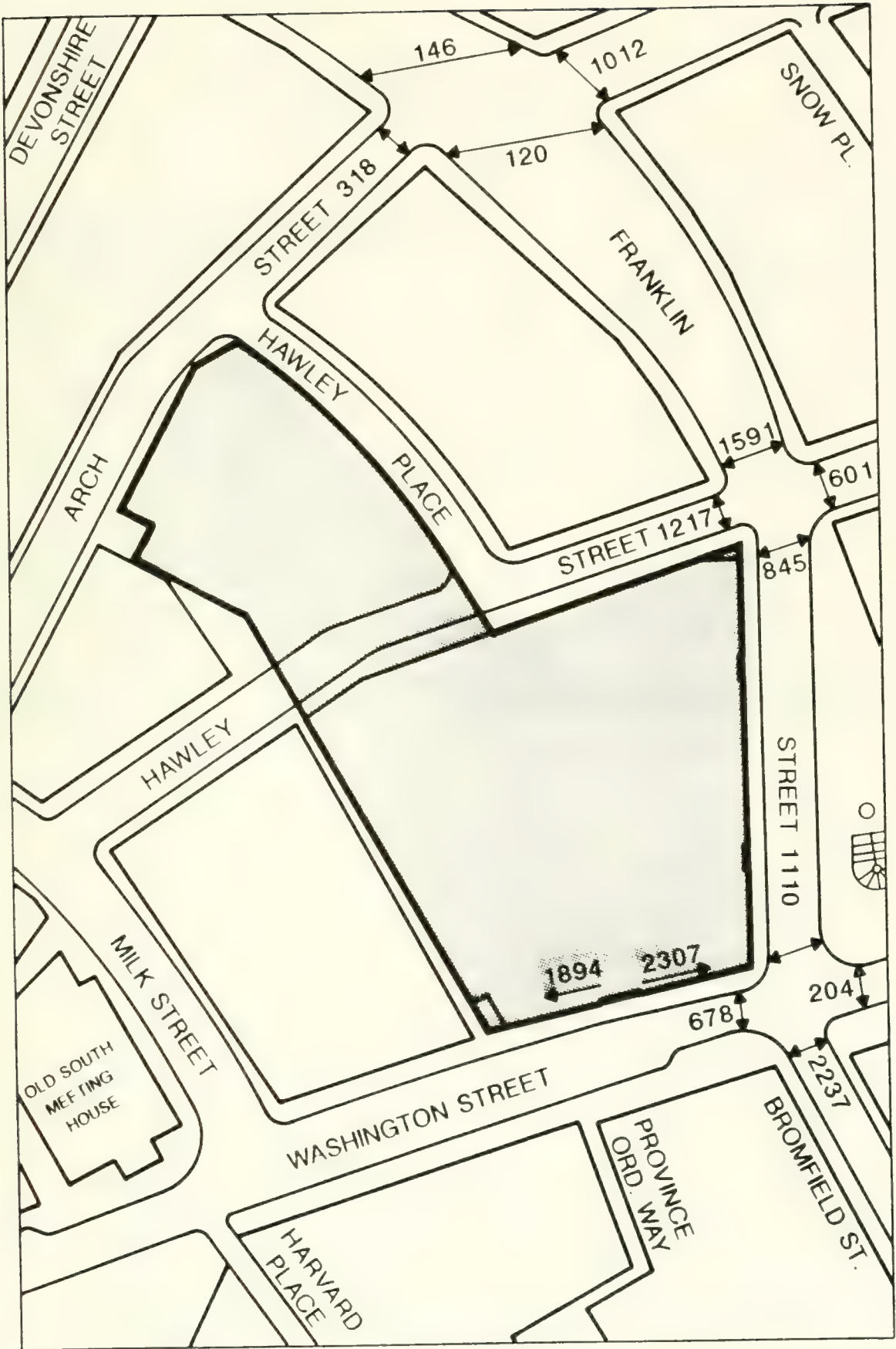


Figure III 3.10

Build PM Pedestrian Volumes

TABLE III.3.4
NO-BUILD/BUILD PEDESTRIAN
LEVELS OF SERVICE

	<u>AM</u>	<u>MID-DAY</u>	<u>PM</u>
<u>CROSSWALK (Square Feet/Pedestrian)</u>			
<u>Washington/Franklin/Bromfield</u>			
-Bromfield Street	A/A	A/A	A/A
-Washington (North side)	A/A	A/A	A/A
-Franklin Street	A/A	A/B	A/A
-Washington (South side)	A/A	A/A	A/A
<u>Franklin/Hawley</u>			
-Franklin (West side)	A/A	A/A	A/A
-Hawley (North side)	A/A	A/A	A/A
-Franklin (East side)	A/A	B/B	B/B
-Hawley (South side)	A/A	A/A	A/A
<u>Franklin/Arch</u>			
-Franklin (West side)	A/A	A/A	A/A
-Arch (North side)	B/B	B/B	A/A
-Franklin (East side)	B/B	B/B	B/B
-Arch (South side)	A/A	A/A	B/B
<u>Walkway (Pedestrian/minute/foot)</u>			
Woolworth	<u>AVERAGE WALKWAY/PLATOON</u> C/D-C/DC/D-C/D C/D-C/D		

4.0 PARKING

4.1 Description of the Existing Environment

On-street parking is not provided on Arch, Franklin or Washington Streets in the vicinity of the project. However, there are seven spaces reserved for commercial vehicles along the north side of Franklin Street, and eight handicapped spaces along the south side, between Arch Street and Hawley Street. In addition, another eight spaces for commercial vehicles only are located along the east curb of Arch Street between Hawley Place and Milk Street, with another 15-20 commercial spaces along Devonshire Street's western curb. The only metered spaces are the nineteen located along the east curb of Devonshire Street between Milk Street and Franklin Street. In addition to the above, there is a five cab taxi stand located along Franklin Street in front of the existing Woolworth Store, and fifteen spaces reserved for city vehicles along both sides of Hawley Street at the Milk Street end.

Currently located on the site is a parking garage with a capacity of 880 vehicles. According to data provided by the operator of the garage, the garage has an average occupancy rate of 66.3% during the peak hours of 8:00 AM to 6:00 PM. The highest occupancy occurs between Noon and 1:00 PM when an average of 723 spaces are occupied.

In addition, the 1987 Downtown Boston Parking Inventory Survey (Boston Transportation Department, 1988), was reviewed for the purpose of determining parking supply and demand within the general study area. According to that report, the proposed project is located in Parking Zone 2. This parking zone has a commercial off-street parking supply of 5,616 parking spaces. During the Noon to 1:00 PM peak hour, approximately 5,123 parking spaces (91%) are occupied within the Zone. Table III.4.1 includes a similar analysis of Zones 1 and 3, both of which are adjacent to the project site. In addition, the table indicates that some 95%, 11,939 of the 12,561 parking spaces within the three zones, are occupied during the peak hour.

4.2 Probable Impacts of the Development

4.2.1 Supply

As noted, there 12,561 off-street parking spaces currently available within the immediate area of the project. Of these, 11,939, or 95% are occupied during the

TABLE III.4.1
PEAK-HOUR PARKING SUPPLY

<u>STUDY AREA</u> <u>PARKING ZONE</u>	<u>TOTAL NUMBER</u> <u>SPACES</u>	<u>TOTAL NUMBER</u> <u>OCCUPIED</u>	<u>OCCUPANCY</u> <u>RATE</u>
1	4,354	4,176	96%
2	5,616	5,123	91%
3	2,591	2,640	102%
COMBINED	12,561	11,939	95%
<u>WOOLWORTH</u>	880	723	81%

peak hour. In addition, by 1994 some 5680 additional spaces are proposed for the area, as shown in Table III.4.2.

TABLE III.4.2
ADDITIONAL PARKING SUPPLY

<u>PROJECT</u>	<u>ADDITIONAL SPACES</u>
110-120 Tremont	275
Pavilion at Park Square	265
Parkside	173
600 Washington Street	350
146 Boylston Street	69
45 Province Street	73
125 Summer Street	300
Kingston/Bedford	891
Commonwealth Center	880
Post Office Garage	1400
Boston Crossing	850
TOTAL	5526

The demand from the projects above, represent an increase in available supply to a total of 18,087 spaces.

While the 880 commercial spaces currently located at the existing Woolworth Garage will remain unchanged, the project will add 204 private, i.e. tenant only, spaces. This will result in a total supply of 1084 spaces on-site.

4.2.2 Demand

Utilizing data provided in Parking in Central Boston (prepared for the Boston Transportation Department by Cambridge Systematics, Inc. and Vanasse/Hangen Associates, 1983), as well as the trip generation data

contained in Section III.1, the project's 1994 parking demand has been estimated. It should be noted that the turnover rate is conservative (i.e. overestimates demand) since it assumes that employees will not make non-work trips. When employees make these trips they do not add to parking demand, since the vehicle which leaves the space will return. According to Table III.4.3, the completion of Forty Franklin is expected to generate a maximum demand for 438 long term parking spaces. In addition, there will be a demand for 96 short-term (less than three hours) spaces during the entire day.

TABLE III.4.3
ADDITIONAL PARKING DEMAND

<u>TYPE OF</u> <u>TRIP</u>	<u>TWO-WAY</u> <u>VEHICLE</u> <u>TRIPS</u>	<u>ONE-WAY</u> <u>VEHICLE</u> <u>TRIPS</u>	<u>TURNOVER</u> <u>RATE *</u>	<u>PARKING</u> <u>DEMAND</u>
Work Trips	976	438	1.00	438
Non-Work	<u>512</u>	<u>256</u>	2.67	<u>96</u>
Total Demand	1488	694		534

Based upon the existing and proposed supply of off-street parking spaces, the existing garage, which currently operates at 66% capacity for long-term parking, should accommodate all long term trips during the peak hour. In addition, with the anticipated re-opening of the Post Office Square Garage relieving a great deal of the existing demand at the garage, the short term demand should be met as well.

IV. ENVIRONMENTAL IMPACTS

1.0 WIND

1.1 Nature of Winds in Urban and Suburban Areas

The winds blowing over the earth's surface are slowed and mixed by interaction with trees, buildings, and other features which contribute to "surface roughness." The result of this interaction is that the average wind speeds increase with elevation above the local terrain up to a level called the gradient height (usually 900 to 1,350 feet). Above this level, the wind speed is relatively constant and unaffected by the surface development. This region below the gradient height where the surface roughness affects the wind characteristic is known as the atmospheric boundary layer.

The interaction of the atmospheric boundary layer with building structures creates complex flow fields, which result in large variations in ground level wind speed and direction near an isolated building and/or groups of buildings.

Figure IV.1.1 shows the flow around an isolated block building which is not very tall in comparison to the gradient height. In such cases, the flow field can be summarized as follows:

- o Upwind of the building, there is a zone where the approaching flow is first influenced by the presence of the building. Within this zone, both wind speed and direction are affected as the flow "attempts" to travel around and over the building. The exposed front surfaces of the building will experience a pressure higher than ambient as the approaching air decelerates. Since the vertical distribution of wind speeds diminish with decreasing height, a downward-directed pressure gradient will be established as the flow decelerates near the upwind face. This causes a downward flow along with windward surface; at the ground, this flow moves out away from the building, causing the approach flow to separate from the ground at some distance upwind. The result is "standing" eddy (vortex) in front of the lower portion of the building. The exact upwind separation location depends on the building width-to-height ratio, the upstream surface roughness, and the approach flow characteristics. Above this eddy, the incident flow strikes the building face, moving upward and /or laterally depending on its proximity to the roof or side edges. On block-like structures, the resulting boundary layer (i.e., thin "layer" of flow adjacent

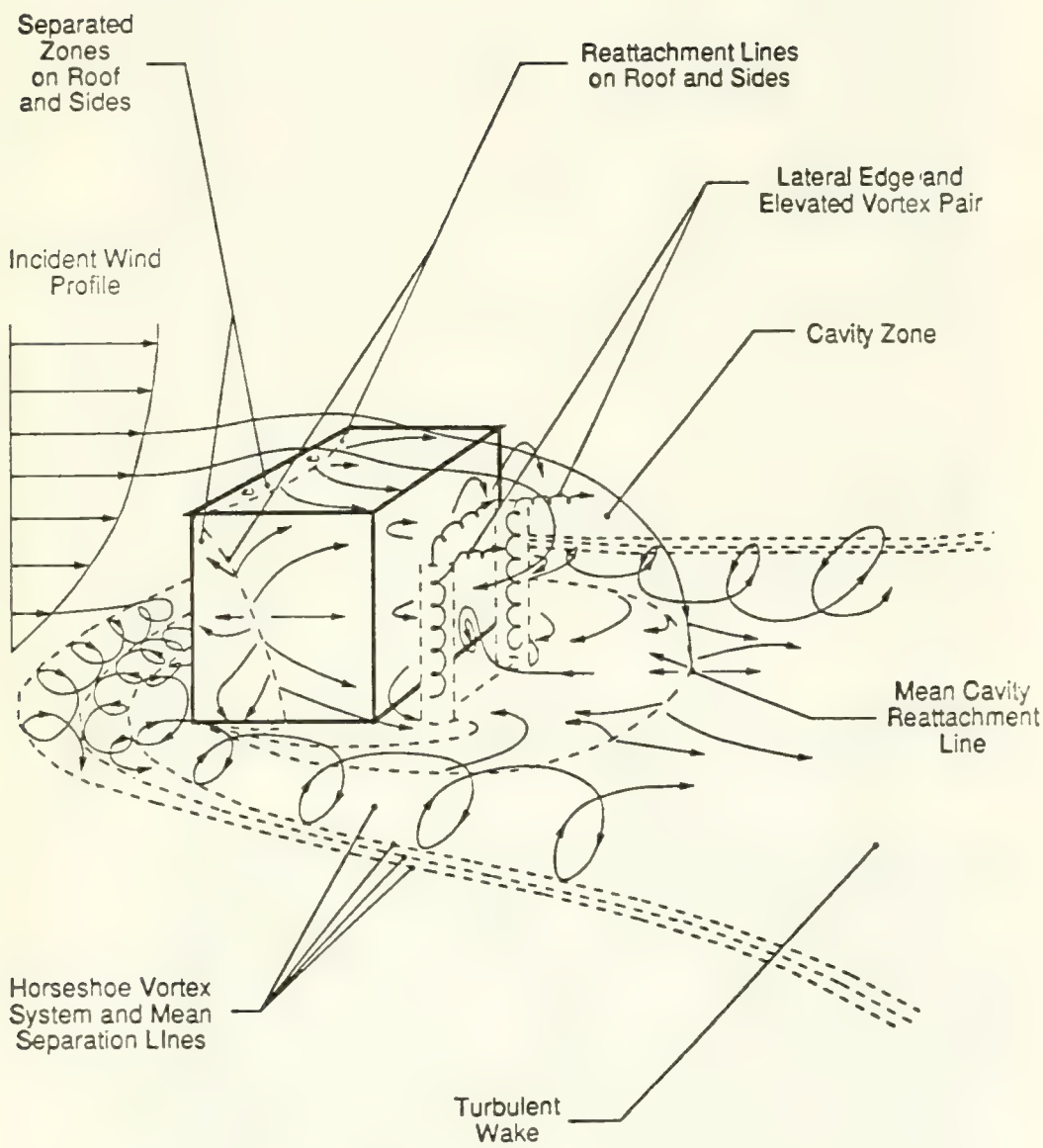


Figure IV.1.1. Flow characteristic around an isolated building.

to the building surface) separates from the exposed surface at sharp edges where the flow cannot follow the abrupt change in direction.

- o The separated boundary layers move out into the surrounding airstream. If the building is sufficiently long (deep), the undistributed flow may re-attach to the building surface at some downstream location, and eventually will separate again at the downstream edge of the roof and sides. If the roof is not long (deep) enough, re-attachment does not occur. In either case, the separated layers curve inward feeding into a "cavity" or recirculation "bubble" immediately downwind of the building. The cavity zone is characterized by low mean speed, high turbulence intensity, recirculation with relatively large residence times of fluid particles "trapped" within the bubble, and low, rather uniform pressure. The exact flow characteristics within this zone depend on the details of the building and are difficult to predict in any general way.
- o The frontal eddy (vortex) also interacts with the incident flow near the side of the building, "wrapping around" the building and trailing off downwind on either side near ground level. Viewed from above, this vortex rather resembles a horseshoe. High wind speeds exist in this vortex near the building.

In an actual urban environment, the natural wind field in the boundary layer is further modified in the following ways as it interacts with groups of buildings.

- o Vertical deflection of upper level winds towards the ground on the windward side of tall buildings. When buildings of different heights appear in combinations, the effects described above for an isolated building often combine to cause higher ground level wind speeds than would exist around the structure if they were isolated from each other. As previously described, the pressure gradient on the windward faces deflect the winds normally associated with higher elevation, down to pedestrian level. The low pressure region from the downstream face (cavity zone) of the upstream building enhances the strength of the "frontal vortex" described above thus enhancing the strength of the "horseshoe vortex." Therefore, in such cases, the highest ground level winds are often found around building corners. This corner flow is usually a steady, high-speed wind that

gradually drops off to a lower speed farther downwind from the building, but becomes gusty in the process. The flow patterns which typically occur in such situations are illustrated in Figure IV.1.2.

- o Channeling of the air stream between buildings: the "blockage" of approaching flow caused by adjacent buildings facades may cause winds to accelerate as the area available for the approaching wind flow is reduced between the buildings. Channeling increases wind speeds within the channel formed. It also creates likely "hot spots" for increased wind gusts at the corners of the channels.

1.1.2 Wind Significance Criteria

Many different wind engineers have attempted to develop criteria for measuring the significance of various wind speeds. The first credible attempt at developing wind criteria is probably the Beaufort Scale developed by Admiral Beaufort based upon his 19th century observation. Contemporary wind significance criteria have been suggested by Davenport (1972), Lawson (1973), Penwarden & Wise (1975), Hunt, Poulton & Mumford (1976), Cohen et al. (1977), and Melbourne (1978).

The various criteria can often be quite confusing. Some are based upon average wind speeds, others upon wind gust speeds. Some are based upon type of activity to be accommodated. Many are based on combinations of these factors. Because these criteria measure human response to an environmental phenomenon, all are influenced, to some extent, by the judgement of the authors and the windiness of the environment to which the authors and their test population are normally exposed. In short, acceptability of winds, like temperature, may vary considerably from region-to-region and from person to person.

In Boston, the primary criterion used is the BRA wind design guidance level, which was derived from several studies, but relied most heavily on evaluations of the Cohen studies, which were conducted in Boston. In these studies, measured wind speeds were correlated with the observed response of the pedestrian population in the downtown area. The BRA has suggested that effective gust velocities (defined as average hourly wind speeds + 1.5 times the root-mean-square of the wind fluctuations) exceeded 1% of the time should be less than 31 mph. This criterion was selected as the primary criterion since it reflects local perceptions of acceptable wind levels, and

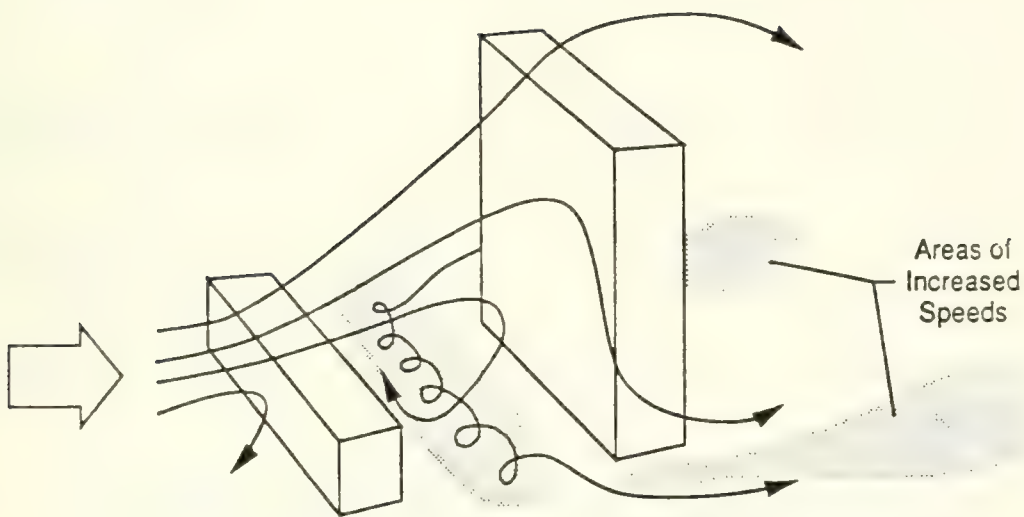


Figure IV.1.2. Flow characteristics between high-rise and low-rise buildings.

because it is a relatively straightforward, easily interpreted design guideline. Table IV.1.1 summarizes pedestrian wind criteria based upon the effective gust velocity. This criterion has typically been applied for design guidance rather than as an absolute acceptability measure. The BRA has asked prospective developers to explore mitigating measures for designs which are predicted to exceed this design guidance criterion.

TABLE IV.1.1
Cohen's Recommended Pedestrian Safety/Comfort
Standards for Urban Winds

<u>Activity Area</u>	<u>Effective Gust Velocity (egv)*</u>	<u>Permitted Occurrence Frequency</u>
Limit for safety All pedestrian areas	30.4 mph	1.0% **
Major walkways- Especially principal egress path for high-rise buildings	30.4 mph	1.0% **
Other Pedestrian Walkways- Including street and arcade shopping area	25 mph	5%
Open plaza and park sitting areas, open-air restaurants	9 mph	20%

* The effective gust velocity (egv) is defined as $egv = U + 1.5 U_{rms}$ where U is the mean windspeed at a particular location and U_{rms} is the root mean square of the fluctuating velocity component measured at the same locations over the same time interval.

** The effective gust velocity with a 1% occurrence frequency was derived by interpolation of data from Cohen et al ., 1977; the actual value proposed for a 0.1% occurrence frequency if 35.6 mph.

An alternate supplemental set of criteria which has been used occasionally is the Melbourne "International Pedestrian Comfort Criteria" depicted in Figure IV.1.3. These are probabilistic criteria for hourly average pedestrian winds for a variety of human activities. The vertical scale is the average hourly velocity in miles per hour; the horizontal scale is the frequency of

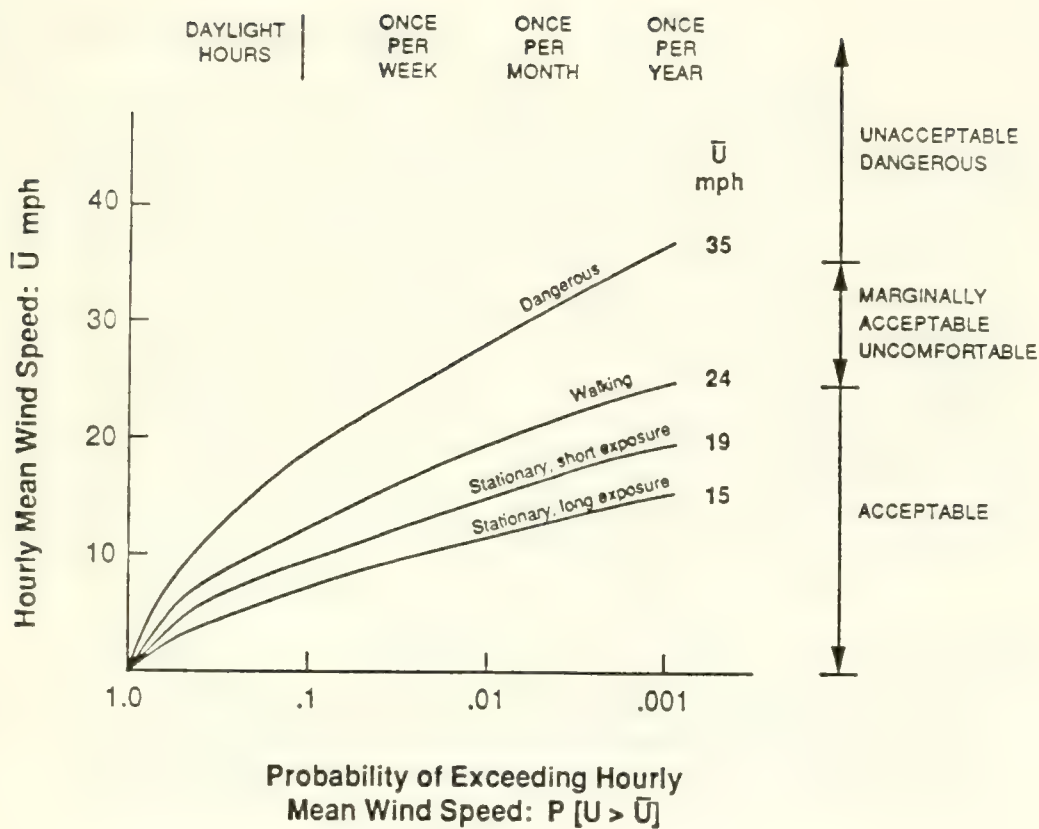


Figure IV.1.3. Melbourne's "International Pedestrian Comfort Criteria."

occurrence of the wind speed. The four curves on the graph define five separate comfort zones. The upper zone represents hazardous wind speeds, the second zone indicates wind speeds that may be safe but uncomfortable for walking, the third zone indicates a comfortable walking environment, the fourth zone indicates wind speeds low enough to accommodate short-term stationary exposures, and the fifth and final zone indicates wind speeds acceptable to accommodate long-term stationary activities.

1.1.3 Boston Wind Climate

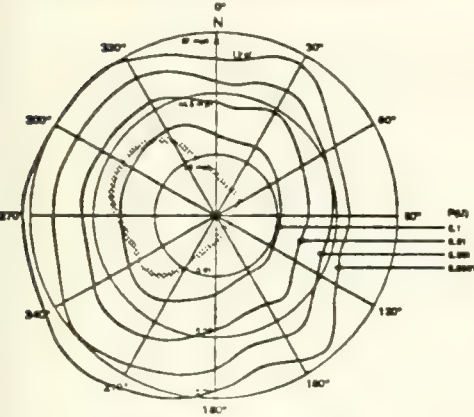
The Boston area experiences a high frequency of wind events as a result of its geographic location. These events can be characterized by the frequency of direction and wind speed at an elevation which is well above the influence of buildings and terrain features. These data show a tendency for winds to originate from certain directions or sectors; thus, such tendencies have implications with respect to building sizing and massing strategies which will result in the least impact. For a reference elevation of 960 feet over Boston, the significance of the siting with respect to frequently occurring wind events is illustrated in Figures IV.1.4 and IV.1.5. Figure IV.1.4 shows the annual wind statistics on a location plan of the proposed development. Figure IV.1.5 illustrates the variation of these statistics as a function of season.

The data in Figures IV.1.4 and IV.1.5 include probability-of-direction wind statistics (dotted line) P(AZ) and probability-of-velocity exceedance curves (solid lines) P(U) for the reference level winds. A representation of the scale is presented in Table IV.1.2.

TABLE IV.1.2
INTERPRETATION OF WIND "ROSE" SCALES

<u>Scale</u>	<u>PAZ (Probability that winds will originate from azimuth shown: equivalent 3° segment)</u>	<u>P(U) Probability that winds will exceed velocity when winds blow from that direction</u>
1) inner ring	0.01 (1%)	10 m/s (22.5 mph)
2) middle ring	0.02 (2%)	20 m/s (45 mph)
3) outer ring	0.03 (3%)	30 m/s (67.5 mph)

Boston Wind Rose: Annual Winds at 960 ft
WIND AZIMUTH (Degrees from North)



Wind speed/Probability vs. Azimuth
for Gradient/Reference Level Winds

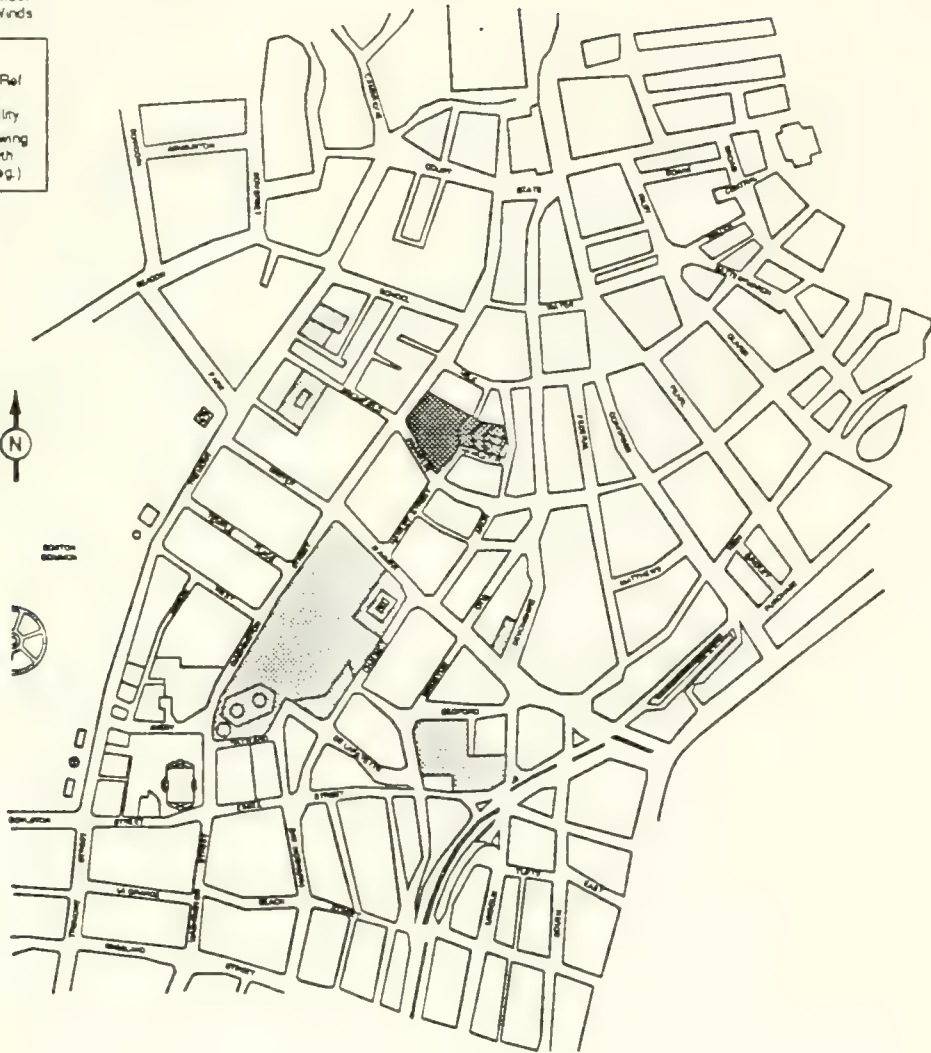
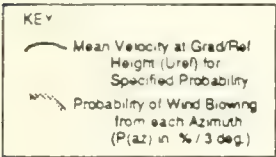
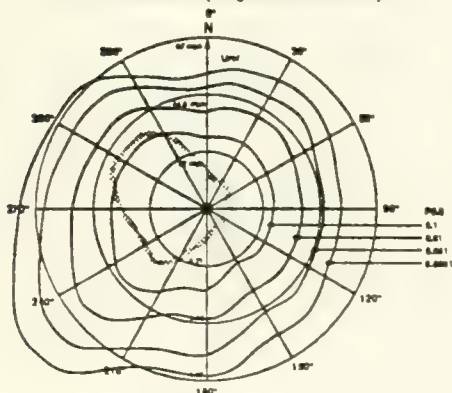
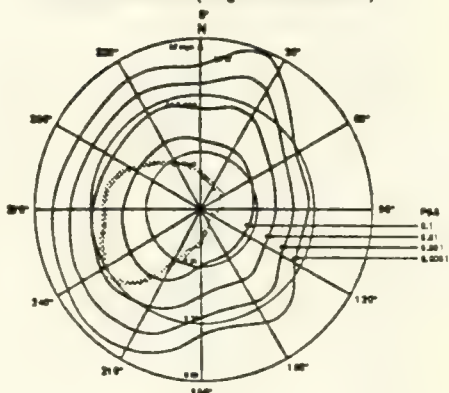


Figure IV.1.4. Annual statistic wind distribution over Boston, Massachusetts.

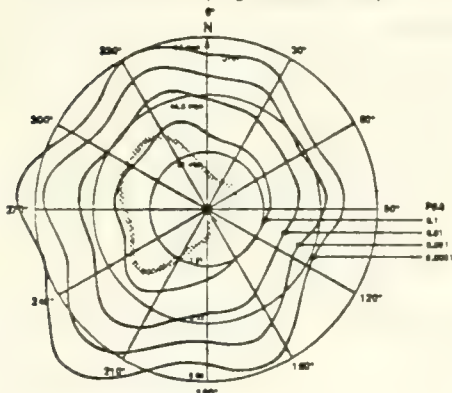
Boston Wind Rose: Spring Winds at 960 ft.
WIND AZIMUTH (Degrees from North)



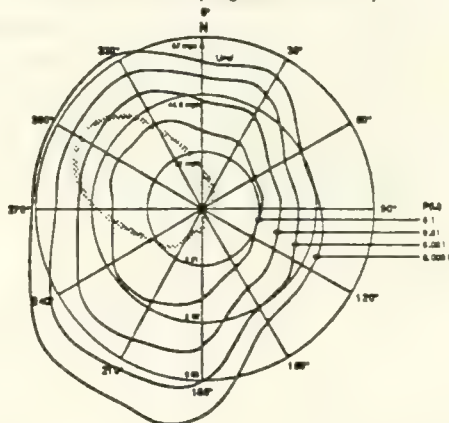
Boston Wind Rose: Summer Winds at 960 ft.
WIND AZIMUTH (Degrees from North)



Boston Wind Rose: Autumn Winds at 960 ft.
WIND AZIMUTH (Degrees from North)



Boston Wind Rose: Winter Winds at 960 ft.
WIND AZIMUTH (Degrees from North)



Windspeed/Probability vs. Azimuth for Gradient/Reference Level Winds

KEY:

Mean Velocity at Grad/Ref
Height (Uref) for Specified Probability

Probability of Wind Blowing
from each Azimuth (P(az) in % / 3 deg.)

Figure IV.1.5. Seasonal statistical wind distribution over Boston, Massachusetts.

On these plots, the dashed line represents the probability that the wind will originate from a particular azimuth, and the solid contours are lines of equal probability-of-exceedance of various wind speeds to be expected when the winds blow from a given direction. On each "wind rose," the four solid contours start with the inner contour of $P=0.1$ (10% probability of exceedance) and progress outward to a contour of probability $P=0.0001$ (.01% probability of exceedance). For example, referring to the wind rose in Figure IV.1.4 (Annual Winds), there is an annualized probability of $P=0.017$ (1.7%) that the winds will blow from a 3° azimuthal segment centered on 270° , there is a 10% probability ($P=0.1$) that the mean wind speed at the 960 feet reference height will exceed 51.0 mph, a .1% probability ($P=0.001$) that the mean wind speed will exceed 63.0 mph, and a .01% probability ($P=0.0001$) that the reference level mean wind speed will exceed 72.0 mph. When used in conjunction with wind tunnel measurements of pedestrian level wind velocities (which are usually normalized to form a ratio of ground level wind velocity-to-reference level mean wind velocity), an annualized (or seasonal) measurement of velocities which will be exceeded a given percentage of time can be derived. The data in Figure IV.1.5 show that the critical wind directions for Boston are generally northwest, west, and southwest, with important, but less significant winds coming from the south, northeast and north.

1.2 Wind Tunnel Test Procedures

1.2.1. Methodology

This section of the study focuses on the methodology used for obtaining, comparing and determining the significance of the wind climate. The procedure followed to analyze the wind environment around the proposed development consisted of:

- o Inspection of the existing site, site plans, and elevations of buildings and surroundings to enable qualitative analysis of wind flow patterns around the building, and to guide selection of sensor locations;
- o Meeting with BRA personnel to discuss sensor locations and BRA requirements; and
- o Wind tunnel tests of the 1994 No-Build Conditions and Options A and C.

Figure IV.1.6 shows the site plan of the project area, with the Proposed Project buildings shaded and the area included in the model. Figures IV.1.7 through IV.1.10 present photographs of the different configurations tested in the wind tunnel.

1.2.2 Qualitative Analysis

The qualitative assessment of wind conditions entailed the use of smoke visualization as well as erosion particle studies for key wind directions (Northwest, Southwest, and Southeast). Placing one or multiple smoke sources in the site area clarified the flow dynamics in and above the pedestrian environment, allowing the major flow phenomena to be defined. By itself, smoke visualization leads to a basic understanding of the mechanics of the wind/building interactions, but it does not quantify the problem areas.

A semi-quantitative technique which can identify pedestrian areas which will be affected is particle erosion. This technique relies upon the forces of the wind on small particles to remove them from areas of highest wind speed and either deposit them or leave them undisturbed in areas where lower wind speeds occur. By evenly spreading low density erosion particles lightly along the pedestrian level and tracing their movement, distinct areas of accelerated winds are outlined by the absence of particles.

The combination of smoke visualization and erosion particles provides an accurate and insightful approach to developing clear understanding of the flow patterns.

1.2.3 Qualitative Results for No-Build 1994 Condition

Two of the most predominant wind directions in the Boston area are the winter winds from the Northwest and the summer winds from the Southwest. Flow patterns for these wind directions, based upon qualitative analysis, are illustrated in Figures IV.1.11 and IV.1.12, for northwest and southwest winds, respectively.

For the case of the northwest winds (winter), the strongest pedestrian-level winds will occur along the southeast region of Franklin Street and along Devonshire Street. The alignment of wind direction with Franklin Street results in flow being channeled down the street. The flow accelerates as it approaches the Franklin and Devonshire Street intersection, combining with the strong

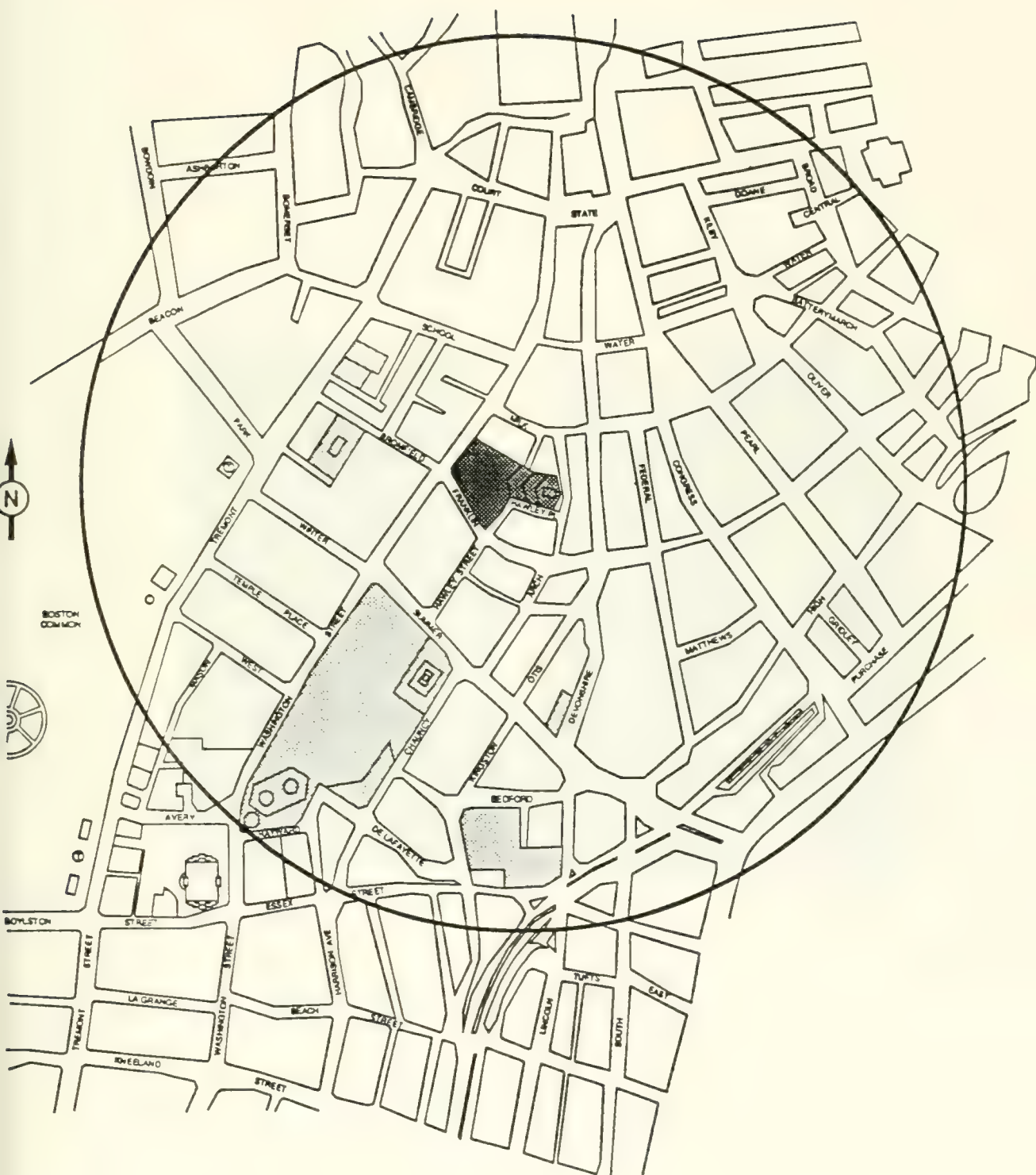


Figure IV.1.6. Site plan with area modelled with wind tunnel.

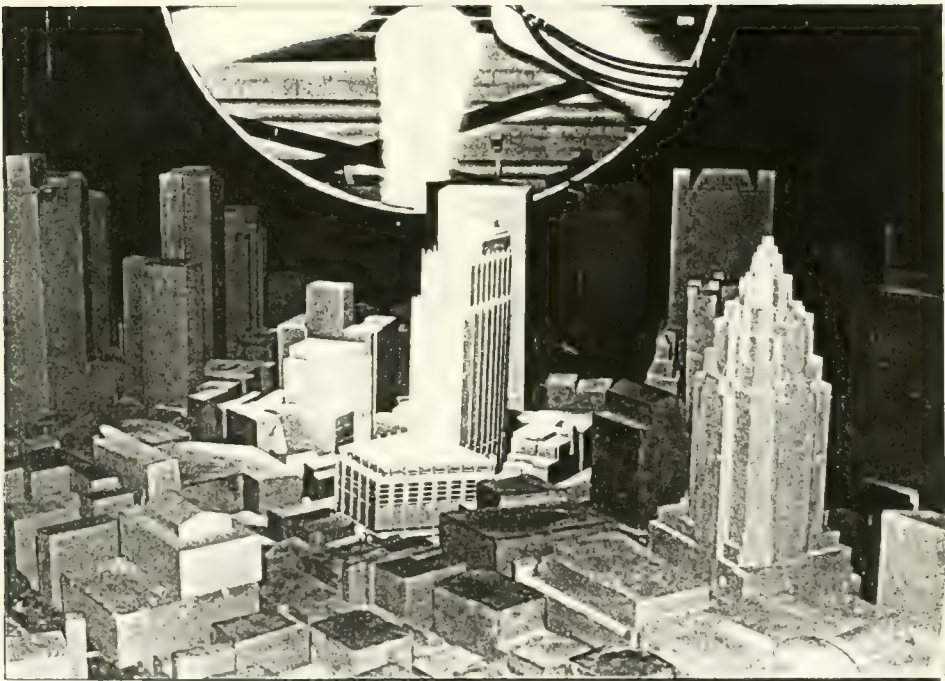


Figure IV.1.7. Photograph of Proposed Project, Scheme "A."

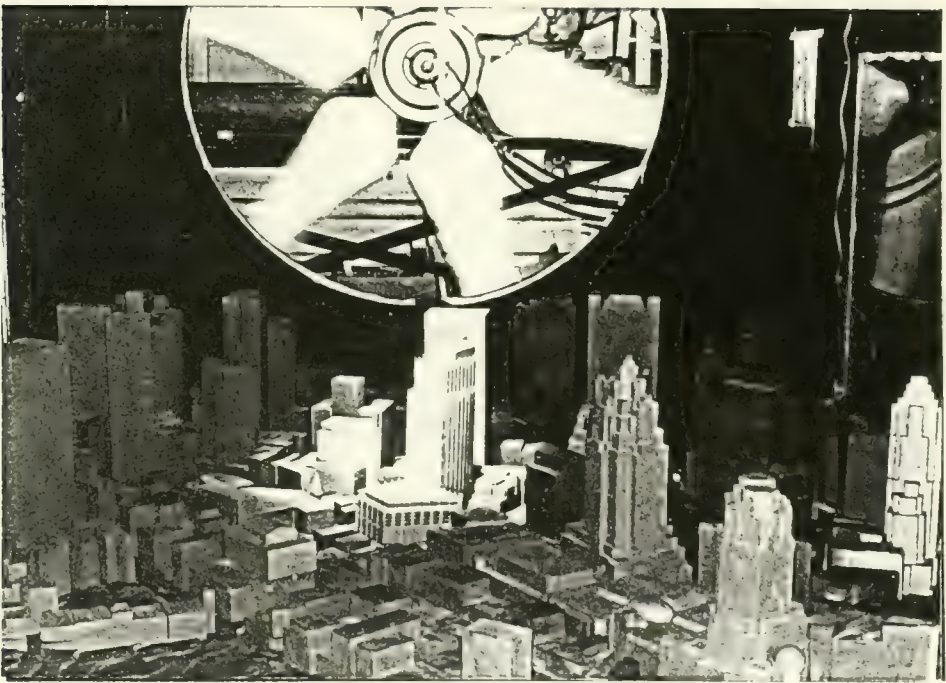


Figure IV.1.8. Photograph of Proposed Project, Scheme "A."

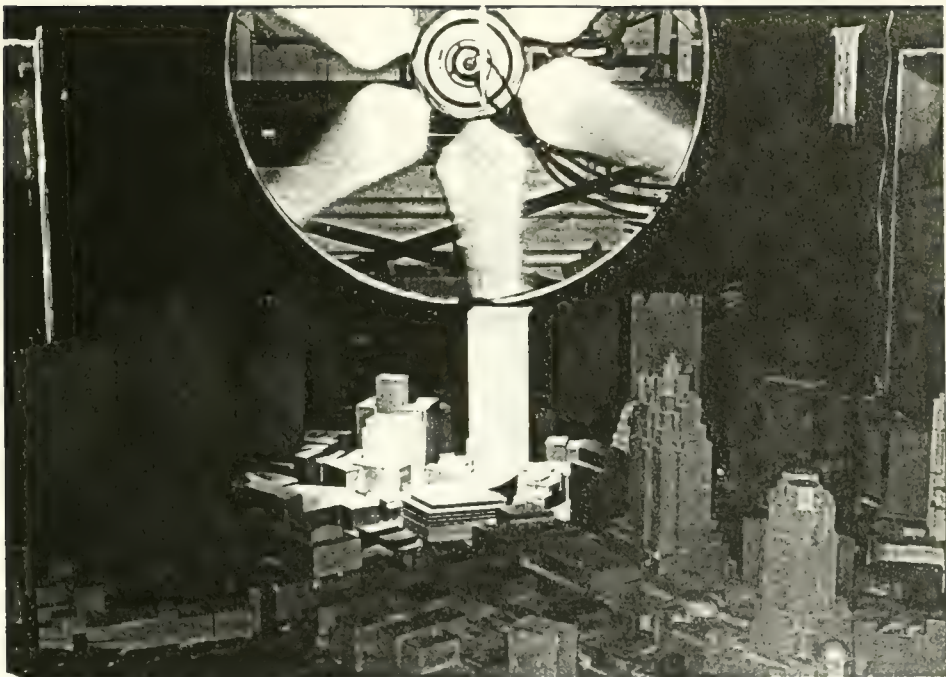


Figure IV.1.9. Photograph of No-build Condition.

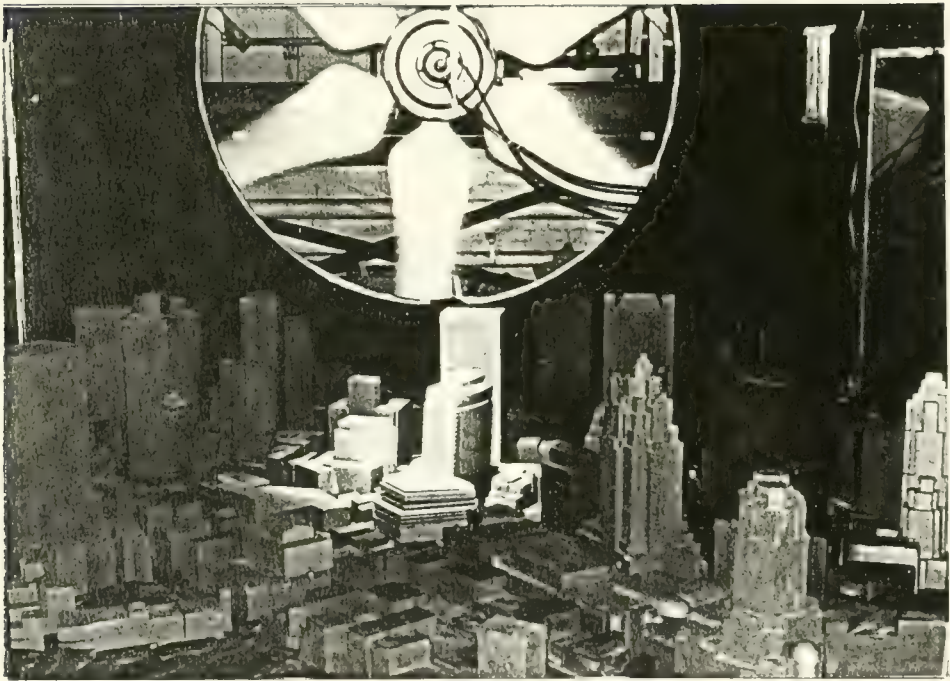


Figure IV.1.10. Photograph of Proposed Project, Scheme "C."

NO BUILD CONDITIONS NORTHWEST WINDS 300°

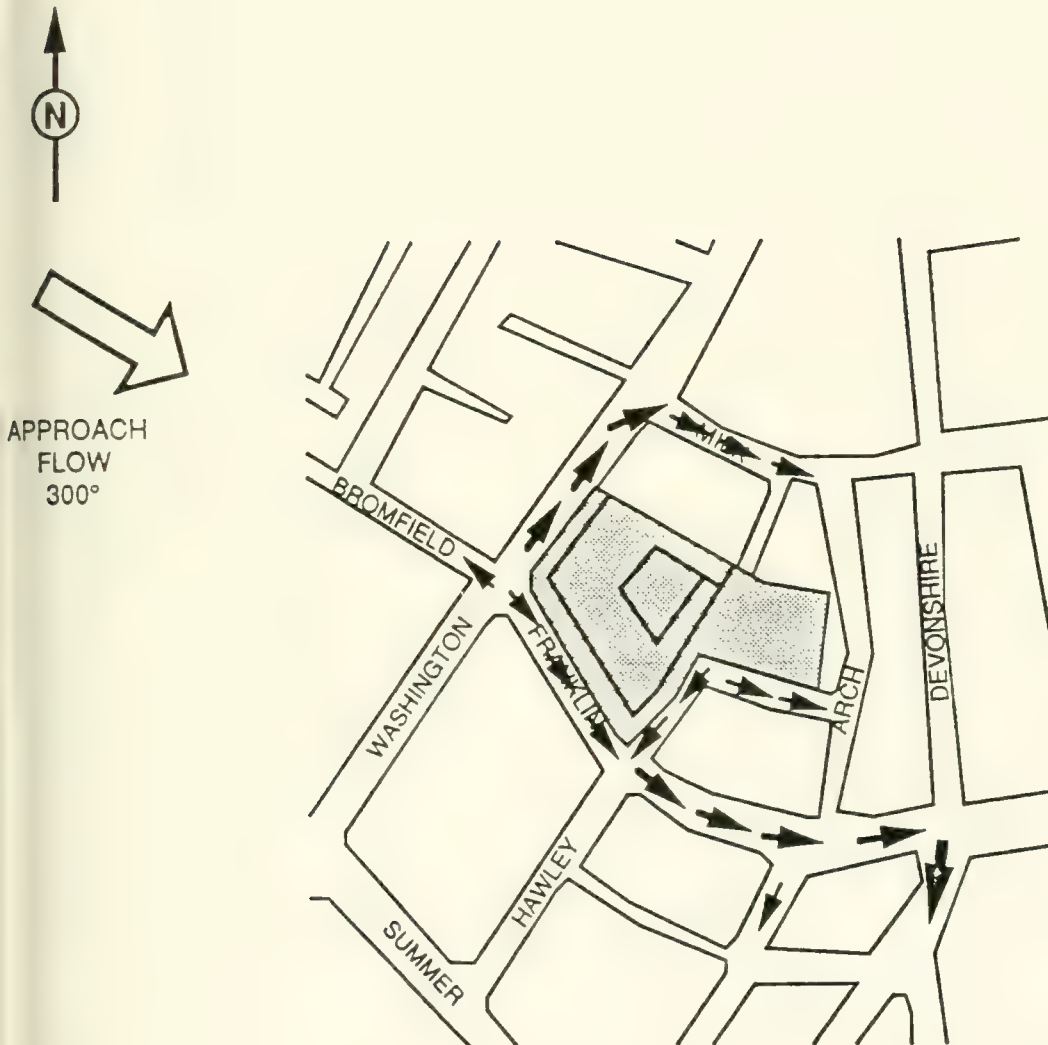


Figure IV.1.11. Qualitative flow patterns for No-build Condition, northwest winds.

NO BUILD CONDITIONS SOUTHWEST WINDS 240°



Figure IV.1.12. Qualitative flow patterns for No-build Condition, southwest winds.

winds along Devonshire Street produced by the Shawmut Bank building. The tall, flat-faced Shawmut Bank building deflects strong winds into the Devonshire Street corridor, producing high wind speeds at the Milk Street and Franklin Street intersections.

In the case of the southwest winds (summer), the strongest pedestrian-level winds occur along Devonshire Street and intense winds along Franklin Street. The winds along Devonshire Street are deflected downward into the pedestrian-level by the Shawmut Bank building. Due to the angle of the approach flow, the velocities will peak near the intersection of Milk and Devonshire Streets. No strong winds are found in close proximity to the existing site.

1.2.4 Qualitative Results for the Build (Option A)

As in the case of the No-Build scenario, the two predominant wind directions (northwest and southwest) are represented in Figures IV.1.13 and IV.1.14, respectively. The flow patterns illustrated in these figures were determined by using qualitative analysis.

For the case of the northwest winds (winter), the strongest pedestrian-level winds occur along the southeast region of Franklin Street and along Devonshire Street. As with the No-Build Condition, wind alignment and the Shawmut Bank building are the primary culprits. Option A tends to accelerate the flow along Franklin Street and decelerates the flow near the intersection of Devonshire and Milk Streets. All other areas seem to be fairly calm and unaffected by the proposed project.

For the case of the southwest winds (summer), the strongest pedestrian-level winds occur along Arch Street and Hawley Place as flow wraps around the end of the building. Strong winds deflect downward off the southern face and accelerate into Arch Street. The proposed project shields the Shawmut Bank building and thus reduces wind speeds along Devonshire Street. Less intense winds can be found along Franklin and Milk Streets.

1.2.5 Quantitative Analysis Procedures

Quantitative assessment of wind conditions is carried out through the combination of (1) velocity-versus-azimuth measurements taken in a wind tunnel which properly simulates the winds in the lower atmosphere, and (2) the

FULL BUILD CONDITIONS NORTHWEST WINDS 300°

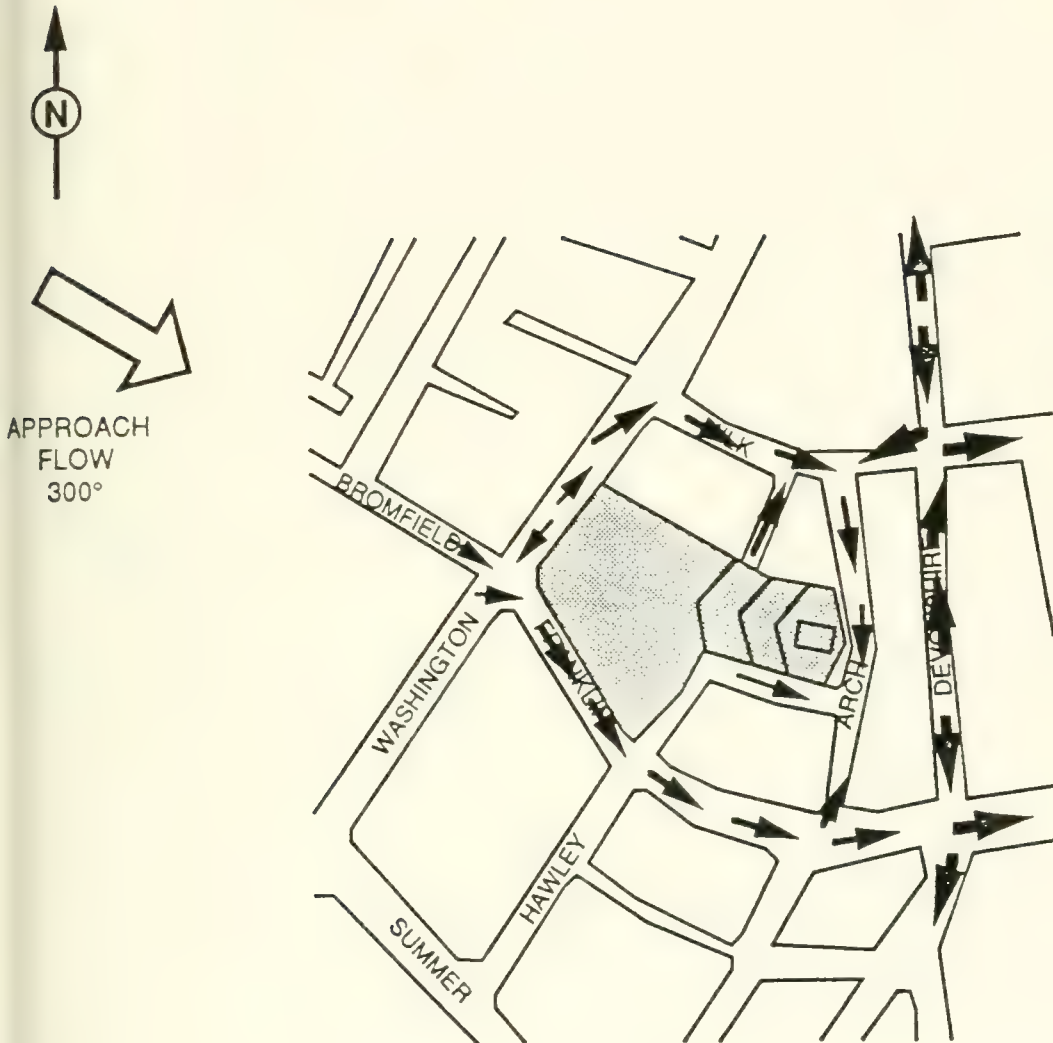


Figure IV.1.13. Qualitative flow patterns for Proposed Project, northwest winds.

FULL BUILD CONDITIONS SOUTHWEST WINDS 240°

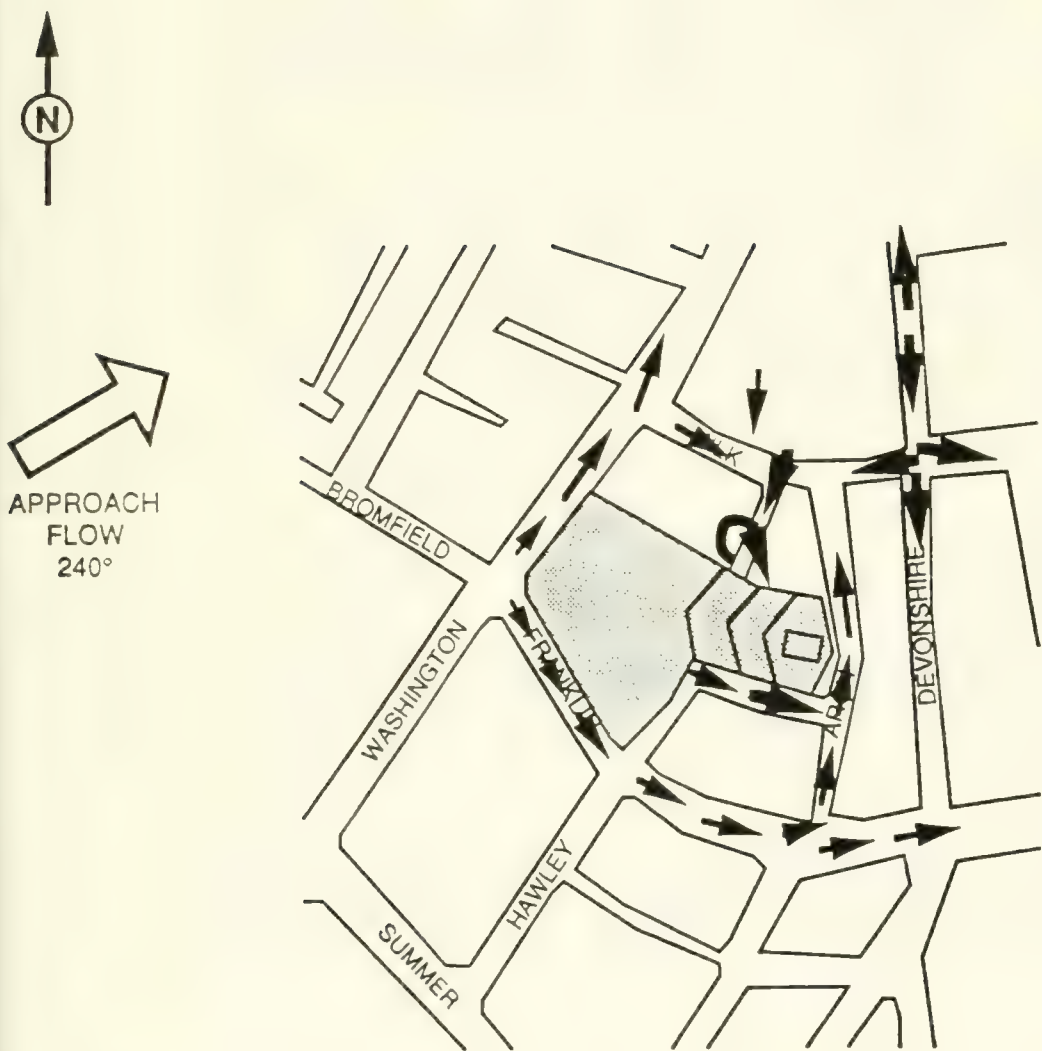


Figure IV.1.14. Qualitative flow patterns for Proposed Project, southeast winds.

long-term statistics of the "undisturbed" wind at the local gradient height (such as was shown in Figure IV.1.4).

The velocity-versus-azimuth data is measured in a 60-foot-long boundary layer wind tunnel by placing velocity-sensitive devices (hot wire anemometers) on a scale model which is mounted on a turntable. The anemometers are placed in selected locations a distance equal to five feet above the local ground surface. Then the "pedestrian-level" speeds (V_p) are measured as a fraction of the gradient velocity (V_g) every 3° of wind direction. The result is a file of V_p/V_g which assumes a constant velocity at gradient height for all directions. However, since the direction and speed of V_g varies with season, time of day, and with large-scale meteorological events, estimates can be produced of the probability that certain velocity thresholds will be exceeded by merging the meteorological wind statistics for V_g with the wind-tunnel-derived site-specific V_p/V_g data. This procedure can also produce estimates of probability-of-exceedance of certain velocity thresholds on a seasonal basis.

Test points for the quantitative analysis were selected based upon one or more of the following criteria:

- 1) major pedestrian way and building entrances
- 2) sensitive population using the local area
- 3) experience of high wind conditions already existing
- 4) results of qualitative analysis
- 5) BRA request

The existing surroundings and topography were modeled within a 1500-foot radius as was shown in Figure IV.1.6. The wind profile used upwind of the turntable was an exponential profile with an exponent of approximately $a = 0.3$.

1.3. Analysis of Effects of Proposed Project

1.3.1 Overview

The overall windiness of the test site decreased in some areas and increased in others. The BRA guideline of 31 mph annual percent gust velocities was exceeded 1 time for the No-Build (1994) and 0 times for Options A and C.

Table IV.1.3 lists the percentage of sensor locations within a given 1% annual gust velocity range for all

cases. For example, 14% of 28 locations, or 4 test points, were within the 15 to 20 mph range for the No-Build 1994 condition and 39% or 11 test points were within the same velocity range for Option A. Option C produces a somewhat lower wind environment.

TABLE IV.1.3
PERCENTAGE OF TEST LOCATIONS IN DIFFERENCE
1% ANNUAL GUST VELOCITY (MPH) RANGES

	Gust Velocity Range (mph)				
	<u>0-15</u>	<u>15-20</u>	<u>20-25</u>	<u>25-30</u>	<u>>30</u>
No-Build	57	14	21	4	4
Option A	29	39	18	14	0
Option C	36	36	14	14	0

A total of 20 test sensor locations were evaluated for wind speeds on and around the site of the proposed Forty Franklin development. Figure IV.1.15 shows a map of these locations as well as the predicted effective mean and gust velocities at each location for two configurations. These velocities are expected to be exceeded no more than 1% of the time during the course of the year.

Based upon these findings, areas of predicted highest winds include:

- o Intersection of Devonshire and Franklin Streets for the No-Build and Option A.
- o Intersection of Devonshire and Milk Streets for all three scenarios.
- o Along Arch Street for Options A and C.
- o Franklin Street between Hawley Street and Arch Street for Options A and C.

1.3.2 Detailed Analysis

For clarity in the following analysis, the 28 sensor locations have been separated into five sections, as discussed in the following sections.

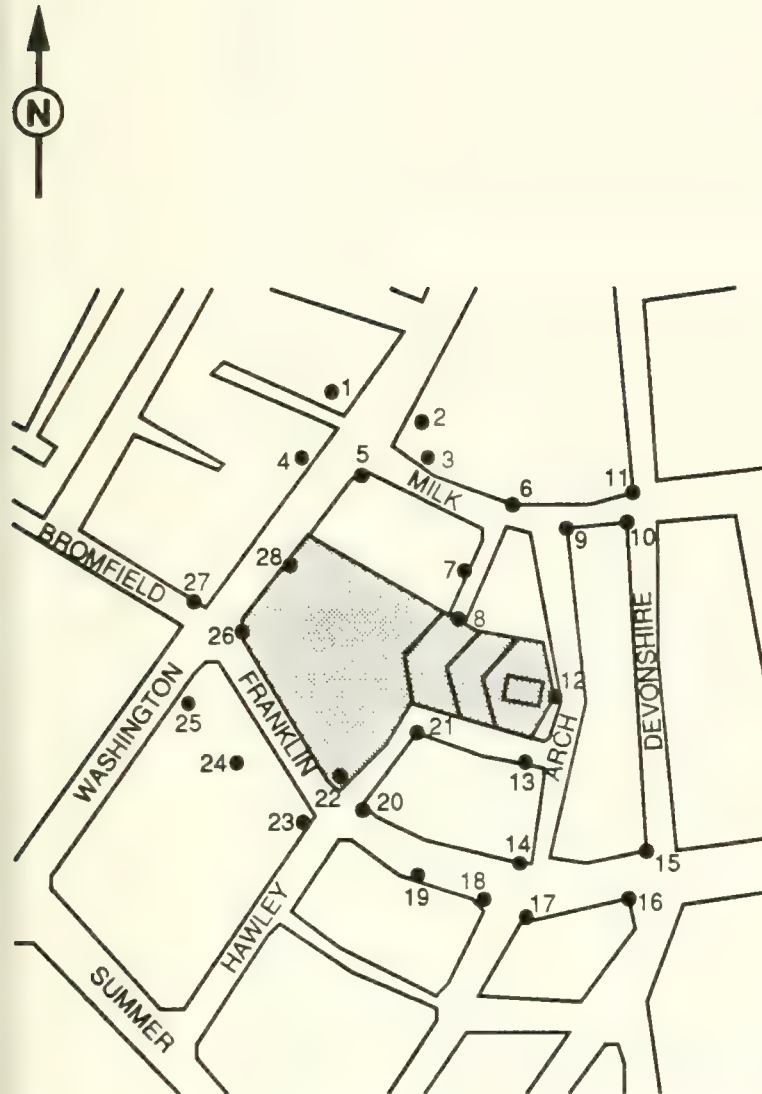
SENSOR LOCATIONS WITH 1% MEAN & GUST VELOCITY VALUES

NB = No-Build Conditions as of 1995

FBA = Full Build Scheme A

FBC = Full Build Scheme C

Bold = Exceeds BRA criterion for
acceptability limit of pedestrian of 31 mph
effective gust velocity 1% of the time on
an annual basis



Point #	1% Mean			1% Gust		
	NB	FBA	FBC	NB	FBA	FBC
1	6.5	6.4	5.1	10.6	10.6	7.7
2	14.7	13.8	6.7	22.4	21.7	9.9
3	4.8	11.2	10.3	8.3	16.5	15.5
4	7.3	9.1	9.1	12.9	15.5	15.1
5	6.9	10.7	13.3	11.3	16.1	17.4
6	5.5	8.8	5.9	8.5	13.8	9.1
7	4.9	9.5	11.6	8.6	14.6	17.7
8	6.7	13.7	7.9	10.4	17.7	13.2
9	10.9	12.0	16.1	15.5	18.3	22.9
10	16.7	18.0	17.7	25.1	25.1	28.0
11	15.0	12.4	15.4	21.2	19.8	23.5
12	6.2	16.0	20.1	11.0	21.5	27.5
13	9.2	14.0	17.0	14.7	21.0	24.8
14	5.6	11.0	9.2	10.9	16.4	15.4
15	21.4	18.9	19.7	32.8	27.0	28.5
16	13.2	12.8	17.1	21.9	20.7	25.4
17	7.4	8.5	9.3	12.6	13.6	14.5
18	15.6	13.1	12.9	22.4	20.0	18.4
19	14.1	19.3	11.2	21.2	27.6	19.9
20	16.0	20.9	15.0	21.9	25.4	21.8
21	5.4	13.3	14.1	9.4	18.0	18.6
22	11.1	14.5	13.2	15.6	18.2	18.2
23	10.9	11.4	10.0	18.7	18.6	17.4
24	10.2	10.5	9.7	15.4	15.4	14.8
25	9.3	8.0	8.6	14.3	13.3	13.4
26	5.7	8.9	9.5	10.7	14.7	14.8
27	5.8	5.7	6.3	10.4	10.8	11.5
28	4.1	8.2	9.2	7.2	12.0	13.4

Figure IV.1.15. Map of sensor locations and corresponding wind velocities.

1.3.2.1 Washington Street

Consistently heightened low-rise building bordering Washington Street shield the street from penetration of strong winds into the pedestrian level. Positioning the proposed project over the eastern section of the existing site allows the western section to continue the "street wall" effect along Washington Street, thereby reducing the impact of the proposed project. A graphical representation of the measured gust velocities for the No-Build and Proposed Condition along Washington Street is illustrated in Figure IV.1.16. Although an increment in gust velocities is perceptible in some areas, no location approaches the BRA's 31 mph guideline for either condition.

For both Options A and C there is a slight increase in windspeeds between Milk Street and Franklin Street, but the wind comfort levels continue to be acceptable for all pedestrian and open plaza activities. During northeasterly winds, a low pressure zone develops in the Project's wake, thereby drawing flow south of the main entrance to Woolworth into Franklin Street. During southwest winds, the same type of conditions cause flow to travel from north of the Woolworth entrance into Milk Street during southwest winds. Locations #1, #4, and #5 all experience peak velocities from the southeast (120°) direction, resulting from flow channelling along Milk Street. The strongest winds will occur during the fall months north of Forty Franklin and during the winter months south of Forty Franklin. No adverse changes in wind comfort levels are measured on the seasonal basis; in fact, at locations 1 and 2, the comfort levels improve for Option C.

1.3.2.2 Milk Street

Even though the overall windiness of Milk Street increases for the Build options, the wind environment is suitable for all pedestrian activities during both conditions. Figure IV.1.17 represents the distributions of gust velocities for the No-Build and Options A and C. As illustrated, higher velocities were recorded west of Arch Street for both proposed schemes. For Option A, unchanged or lower velocities were recorded at the intersection of Milk Street and Devonshire Street, while Option C produced slightly higher levels along Devonshire Street.

Southeast (120°) winds are the dominate flow direction along Milk Street. Winds channeled along the street

Washington Street Pedestrian Winds

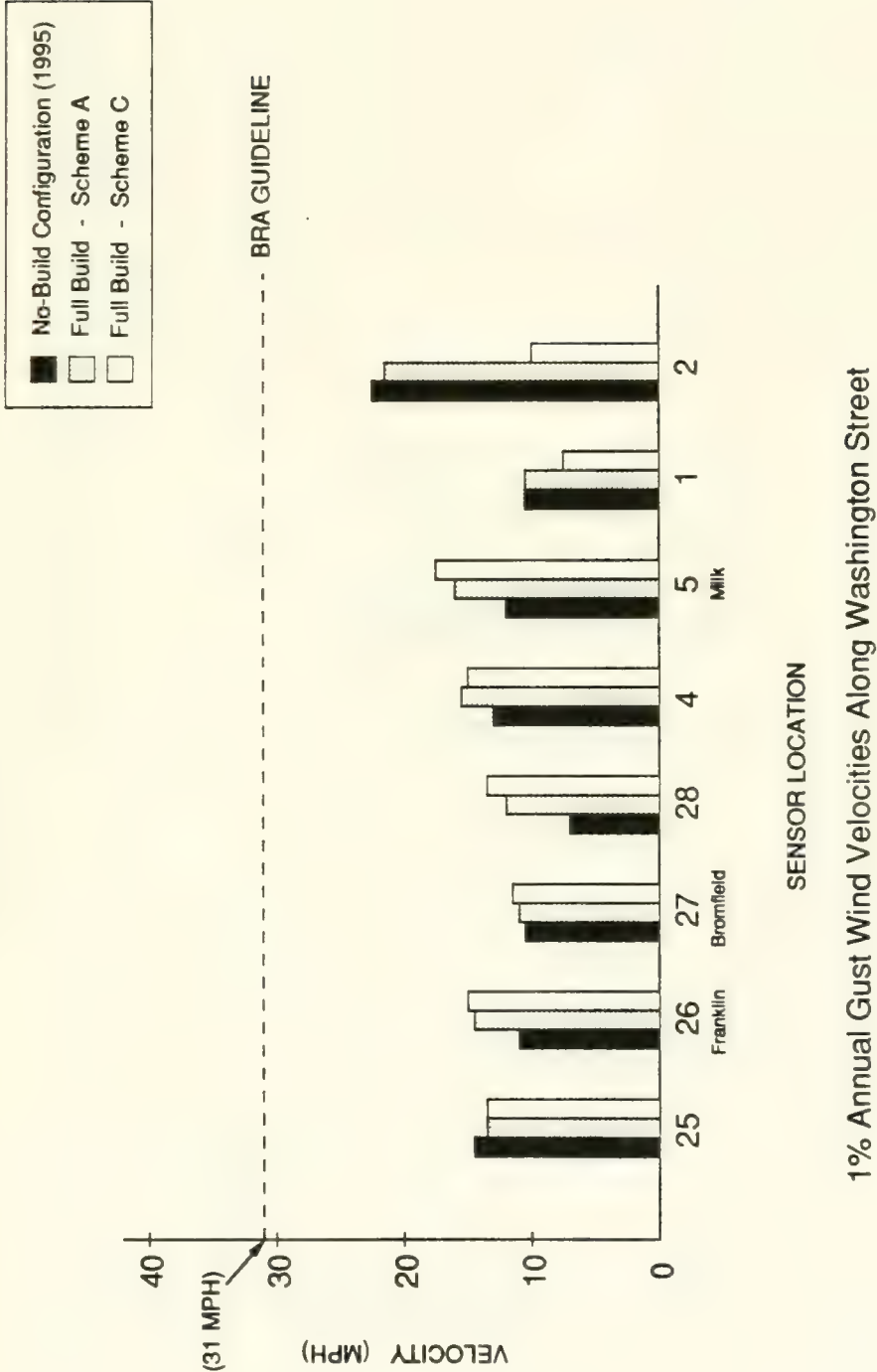


Figure IV.1.16. Comparison of gust velocities along Washington Street.

Milk Street Pedestrian Winds

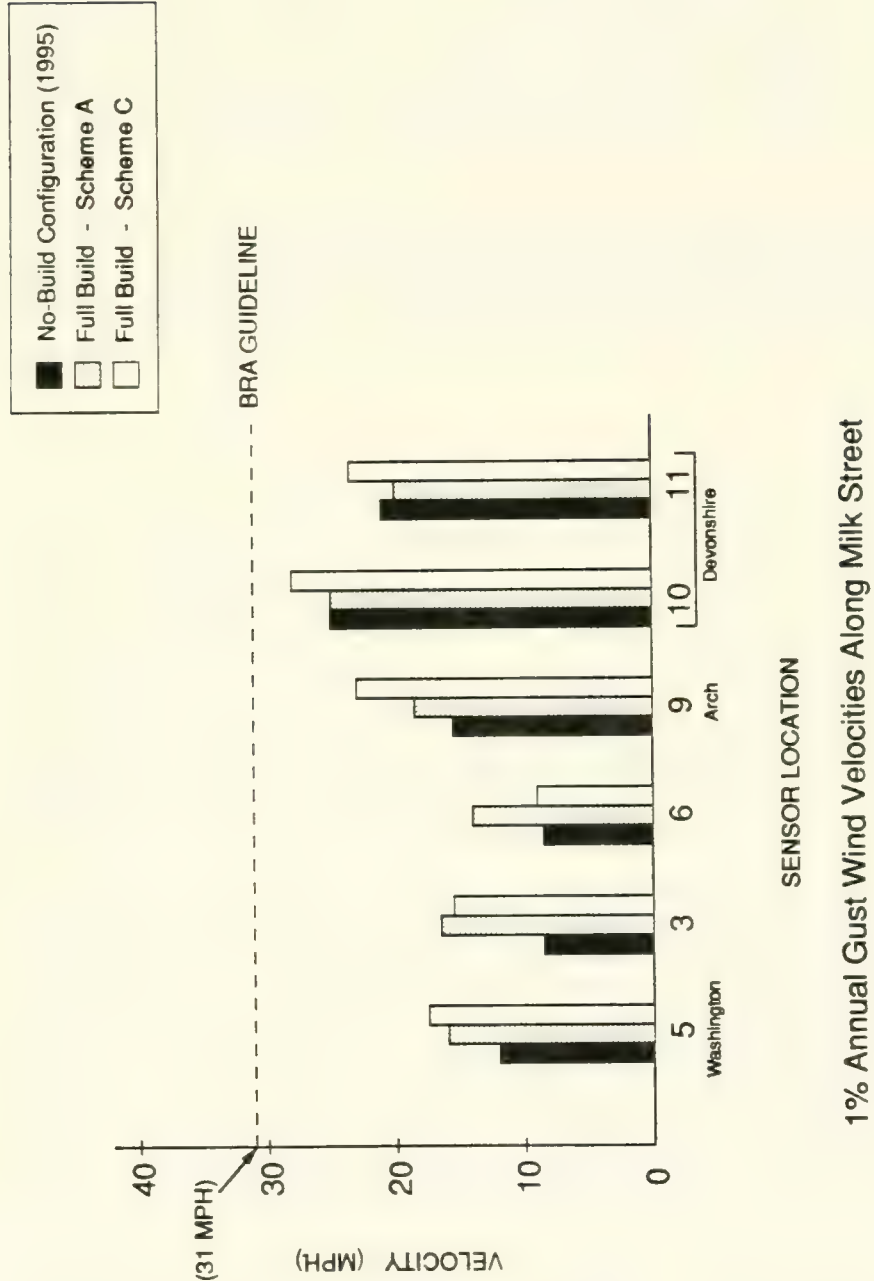


Figure IV.1.17. Comparison of gust velocities along Milk Street.

canyon created between Congress and Federal Street strike the southern facade of the Post Office Building and are deflected into Milk Street. The proposed project worsens conditions in two ways. The proposed project pulls more flow into its wake as well as deflecting some higher speed winds downward into the pedestrian level. The strong southeast winds will cause peak seasonal velocities to happen during the fall months. No significant changes in wind comfort levels are measured on the seasonal analysis.

During northeast winds, peak winds at the corners of Arch Street and Devonshire Street are diminished with the introduction of Option A. The winds pushed away from the proposed project clash with the winds travelling down the Milk Street corridor and reduce the flow's energy.

1.3.2.3 Arch Street

The sheer face of the proposed project pulls strong winds into Arch Street. Peak velocities at the main entrance of the proposed project occur from the south to west, northwest, and northeast wind directions as the winds wrap around the eastern end of the proposed project. Comparison of No-build and Options A and C (Figure IV.1.18) shows that a significant boost at the eastern edge of the project, but no location exceeded the BRA's 31 mph guideline. Option C actually increases winds more than Option A in the immediate vicinity of the proposed building on the Arch Street side.

Wind directions with a perpendicular component to the southern facade of the proposed project generate energetic flow that travels from South to North along Arch Street. Upper-level wind with a perpendicular component to the northern facade of the proposed project generates energetic flow that travels North to South. The largest peak was measured from the northeast direction (57°) due to winds channeling down the Milk Street corridor striking the proposed project. The small peak measured for the No-Build Condition is accentuated by the flow deflected downward by the proposed project.

Windspeeds from the north are blocked by several tall buildings, such as One Beacon Street, the Boston Company building, and Bank of New England, while the financial district shields the project from eastern sector winds. These wind barriers lessen the impact of the proposed project on its surroundings. Although significant increases in wind velocities were measured, the wind comfort levels worsen slightly, but still are acceptable,

Arch Street Pedestrian Winds

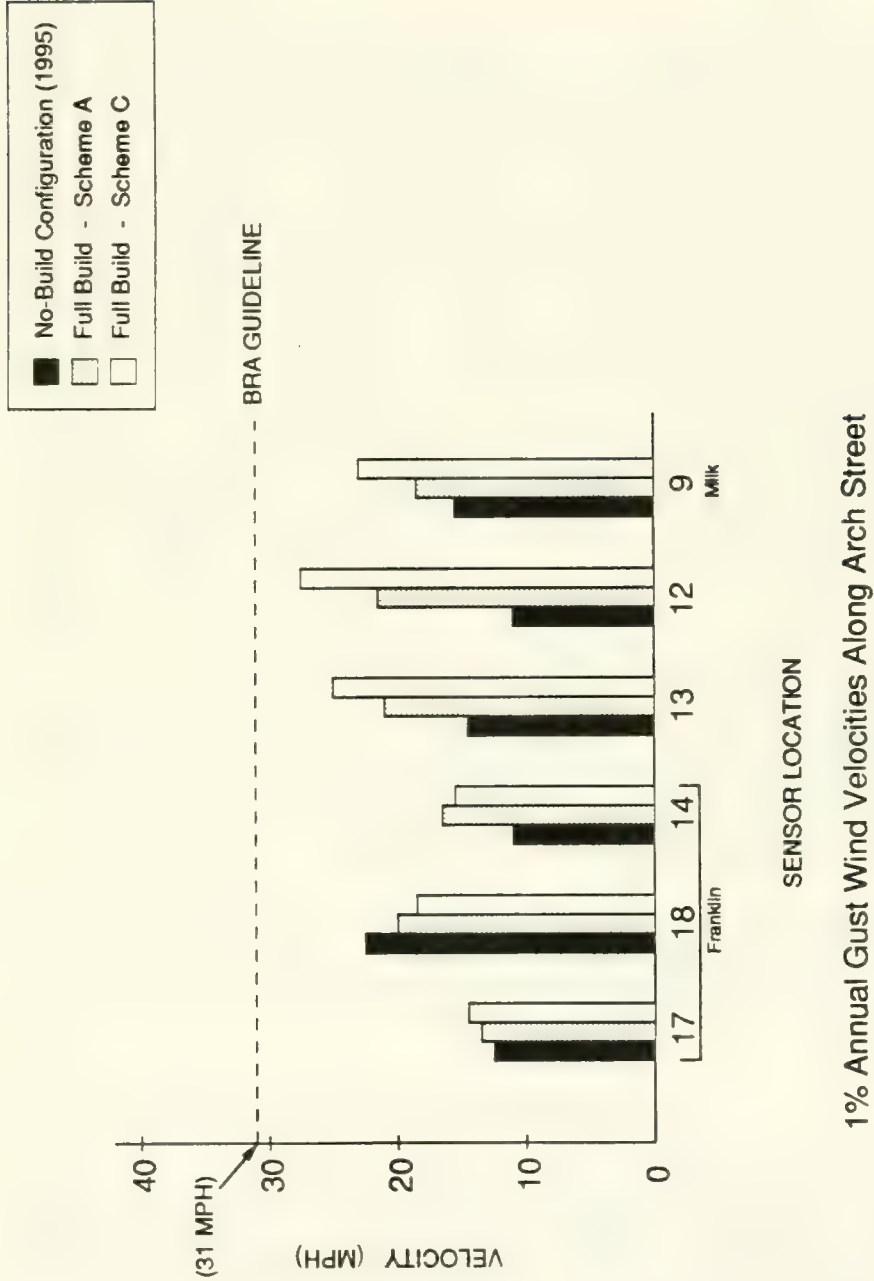


Figure IV.1.18. Comparison of gust velocities along Arch Street.

for pedestrian activities for both the annual and seasonal condition.

1.3.4 Franklin Street

When the prevailing wind direction is aligned parallel to Franklin Street (300°), winds are accelerated along the street level from Washington Street towards Devonshire Street and combine with the strong flow generated by the Shawmut building. The presence of the Proposed Building intensifies these winds between the Hawley Street and Arch Street intersections as additional flow is deflected downward into the pedestrian level. The proposed project does cause significant reduction in windspeeds at the intersection of Franklin and Devonshire Streets by sheltering northwest winds from the Shawmut Building. Graphical representation of the gust velocities are illustrated in Figure IV.1.19. As shown in this Figure, the proposed project diminishes the velocity of the only location (#15) which violates the BRA's 31 mph guideline for the No-build condition to within acceptable levels. Along Franklin Street, the wind environment provided by Option "C" is actually better than that of Option "A".

Northwest of the Hawley Street intersection, wind comfort levels are suitable for all pedestrian and open plaza activities for both conditions. Southeast of the Hawley Street intersection wind comfort levels of all locations are suitable for pedestrian walkways except location #15 for the No-build condition. There are no significant changes in wind comfort levels for the seasonal data.

From the Franklin Street entrance to the MBTA Downtown Crossing Rapid Transit Station to Bromfield Street, no perceivable degradation in the already calm wind environment will take place.

1.3.5 Hawley Street and Hawley Place

Hawley Street connects the north and south sides of the building through a passageway underneath the building and thereby connects a region of different pressure. For northerly winds, flow migrates from the higher pressured northern facade to the lower pressured southern facade. The large surface area of the proposed project bolsters the development of pressure differentials between the north and south sides of the building, thus increasing the winds flowing through the underpass. The strong peak velocities were measured on the south side (location #21) during the northerly winds and on the north side (#8)

Franklin Street Pedestrian Winds

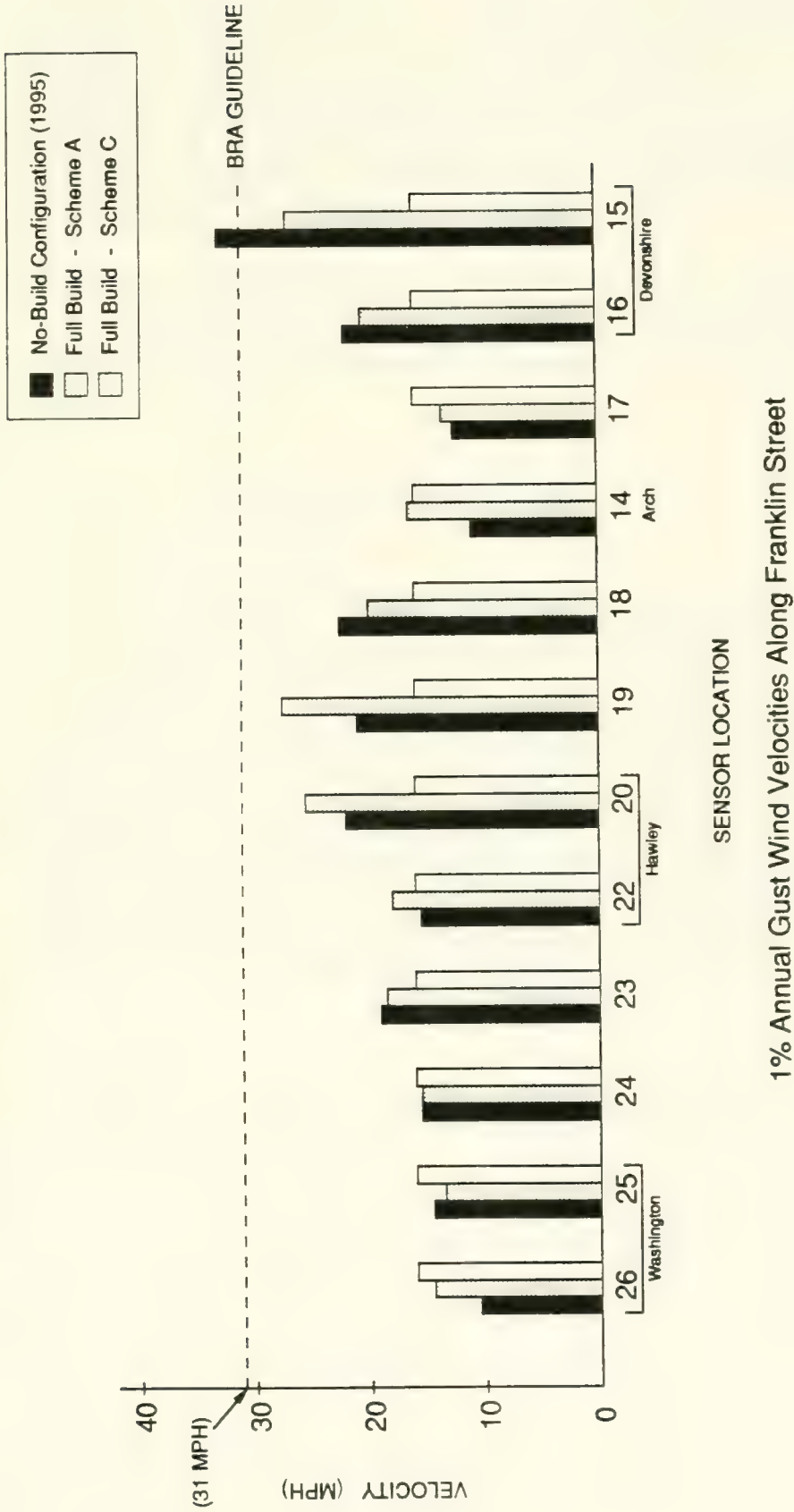


Figure IV.1.19. Comparison of gust velocities along Franklin Street.

during the southerly winds. Secondary peaks are measured at location #8 for southerly winds and at location #21 for northerly winds. The magnitude of changes due to the proposed project, shown in Figure IV.1.20, is significant, but all areas remain within the BRA's 31 mph guideline and wind comfort level suitable for pedestrian activities. The highest windspeeds occur during the fall and winter months but wind comfort levels do not change on the seasonal basis.

The flowfield along Hawley Street near Milk Street is dominated by the same flow characteristics as Milk Street. Winds produced along Milk Street by southeast gradient winds curl around the corner of Milk and Hawley Streets.

1.4.0 Summary of Impacts and Mitigation

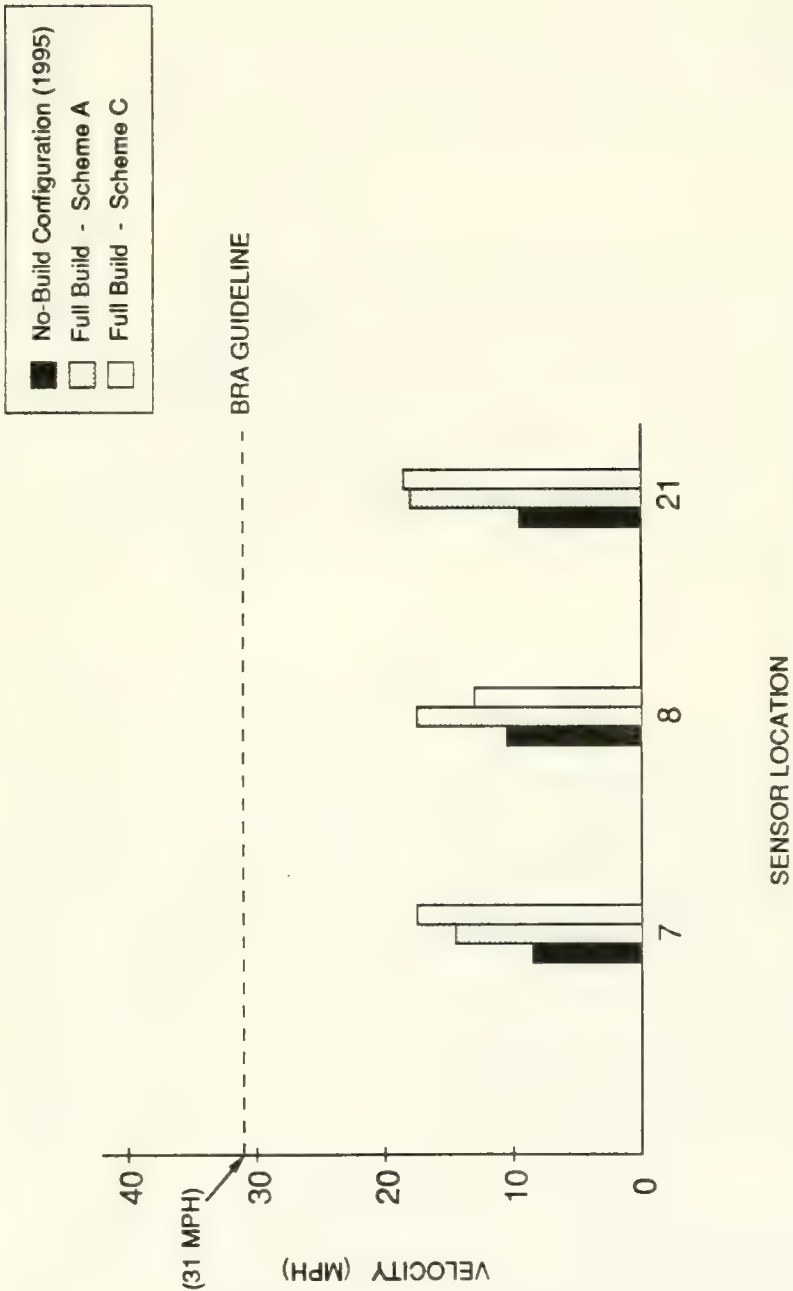
1.4.1 Summary of Impacts

The overall impact of the Option A, the preferred development alternative, is minimal, considering the size of the project. Slightly lower impacts are found for the lower height Option C design. Although there were several areas of increased windspeeds, no significant changes in the wind comfort levels were measured. Both Options A and C mitigate winds at the only location which violates the BRA's 31 mph guideline, significantly diminishing 1% annual gust velocities from 32.8 mph to 27.0 mph for Option A and 28.5 mph for Option C. The highest pedestrian windspeed will occur along Franklin Street southeast of Hawley Street and in close proximity to the eastern base of the proposed project, but no dangerous wind conditions exist.

1.4.2. Mitigation

No mitigation measures are deemed necessary for the Build Condition.

Pedestrian Winds at Hawley Street and Hawley Place



1% Annual Gust Wind Velocities at Hawley Street and Hawley Place

Figure IV.1.20. Comparison of gust velocities along Hawley Street and Hawley Place.

2.0 SHADOW

2.1 Introduction

A graphic shadow impact analysis has been prepared to predict and evaluate the shadow impacts related to Options A, B and C. The analysis shows the net increase in shadow caused by each option of the proposed project.

2.2 Method of Analysis

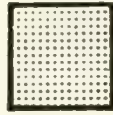
A series of computer generated shadow diagrams was generated to calculate both existing area shadow and project-related shadows. The study utilized Sigma Design "Arris" software and Sun Microsystem hardware. Analyses were conducted for the hours 9:00 A.M., 12:00 noon and 3:00 P.M. for the vernal equinox, summer solstice, autumnal equinox and winter solstice (March 21, June 21, September 21 and December 21). In addition, analyses were conducted for hourly intervals, 10:00 A.M. through 2:00 P.M., for October 21 and November 21 for Options A and C.

2.3 Article 38 Zoning Criteria

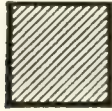
Article 38 of the Boston Zoning Code, titled "Midtown Cultural District Zoning Plan," effective 20 March 1989, requires that proposed projects in the District be in substantial accord with certain environmental impact standards. With regard to shadow, the criterion is that "Each proposed project shall be arranged and designed in a way to assure that it does not cast shadow for more than two hours from 8:00 A.M. through 2:30 P.M. on any day from March 21 through October 21 in any calendar year on any portion of the Shadow Impact Areas that either (a) is not cast in shadow during such days by structures built to the as-of-right limits allowed by this Article, whichever structures cast the greater shadow...."

The shadow impact areas relevant to this project consist of Old City Hall Park, Washington Street as far northeast as School Street, the Boston Five Cents Savings Bank Park, Milk Street between Washington and Hawley Streets, Filene's Park and the related portion of Franklin Street. Figures IV.2.1 displays the Study Key and Study Area for the Shadow Study.

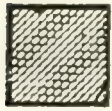
KEY TO SHADOW STUDY



NEW SHADOW



EXISTING SHADOW



NEW SHADOW
SUPERIMPOSED ON
EXISTING SHADOW

STUDY AREA SHOWING SHADOW STUDY AREA

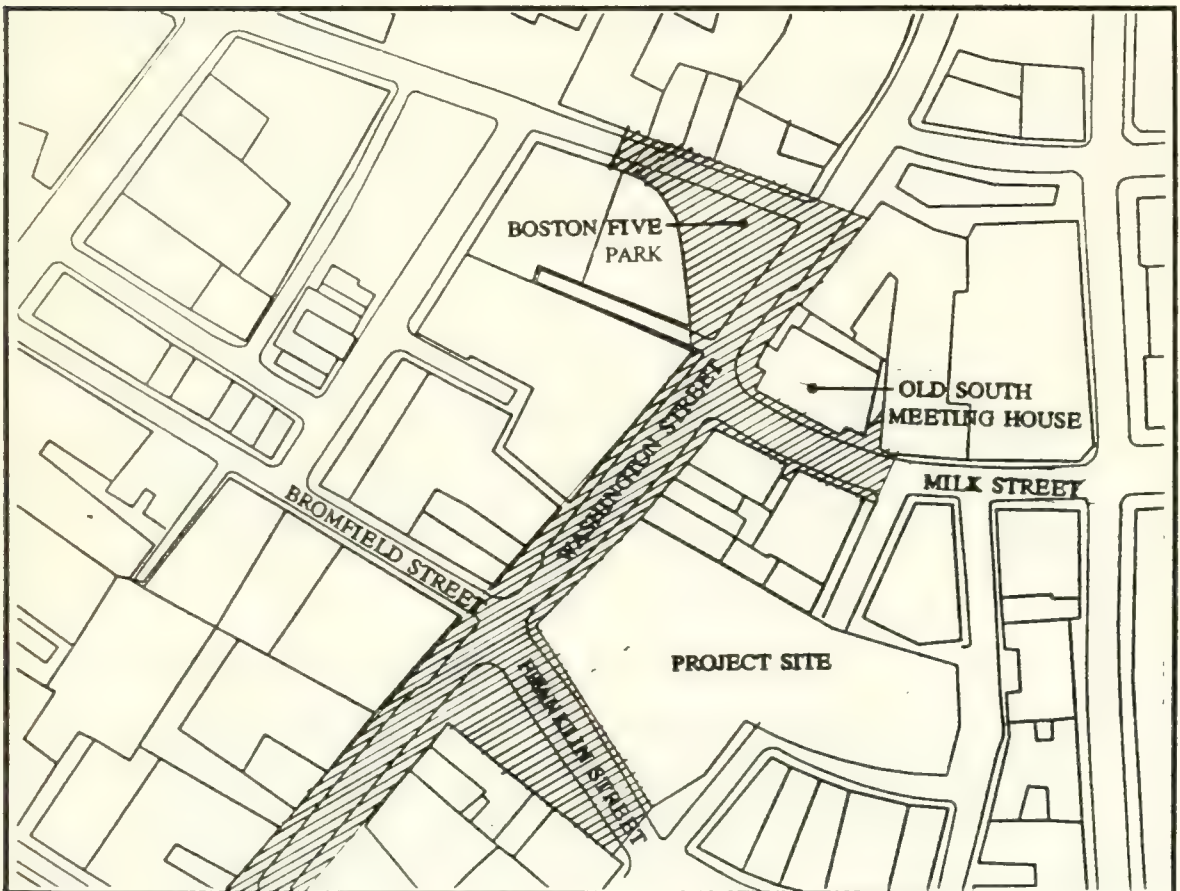


FIGURE IV 2.1

2.4 Probable Project Impacts

2.4.1 March 21 (Vernal Equinox)

At 9:00 A.M., none of the Options introduce new shadows on the impact area, although Options A and C introduce new shadow to a portion of Bromfield Street (Figures IV.2.2 through IV.2.10). At noon, Options A and C create additional shadows on a portion of the Boston Five Cents Savings Bank Park and on the Old South Meeting House roof. At 3:00 P.M. there is no additional shadow at street level from any of the proposed options.

2.4.2 June 21 (Summer Solstice)

None of the proposed options introduces new shadow on the Shadow Impact Areas or on the Old South Meeting House (Figures IV.2.11 through IV.2.19). In fact, there is no new shadow on any street except for very small areas on Hawley and Arch Streets at 3:00 P.M. for all options.

2.4.3 September 21 (Autumnal Equinox)

At 9:00 A.M. there is no new shadow from any of the proposed schemes (Figures IV.2.20 through IV.2.28). At noon, Options A and C introduce a relatively small area of shadow on Washington Street and the easterly corner of the Boston Five Park. At 3:00 P.M. all schemes introduce small amounts of shadow on Hawley Street.

2.4.4 October 21 (Options A and C only)

Options A and C introduce new shadow (Figures IV.2.29 through IV.2.38) on the Boston Five Cents Saving Bank Park at 12:00 noon and 1:00 P.M.; by 2:00 P.M. the area affected is shadow-free. The roof of the Old South Meeting House is affected by new shadow from noon through 2:00 P.M.

2.4.5 November 21 (Options A and C only)

Options A and C introduce new shadow on the Boston Five Park at 11:00 A.M. and noon; by 1:00 P.M. the area affected is shadow free. The Old South Meeting House is affected by new shadow from 11:00 A.M. until 2:00 P.M. (Figures IV.2.39 through IV.2.48)

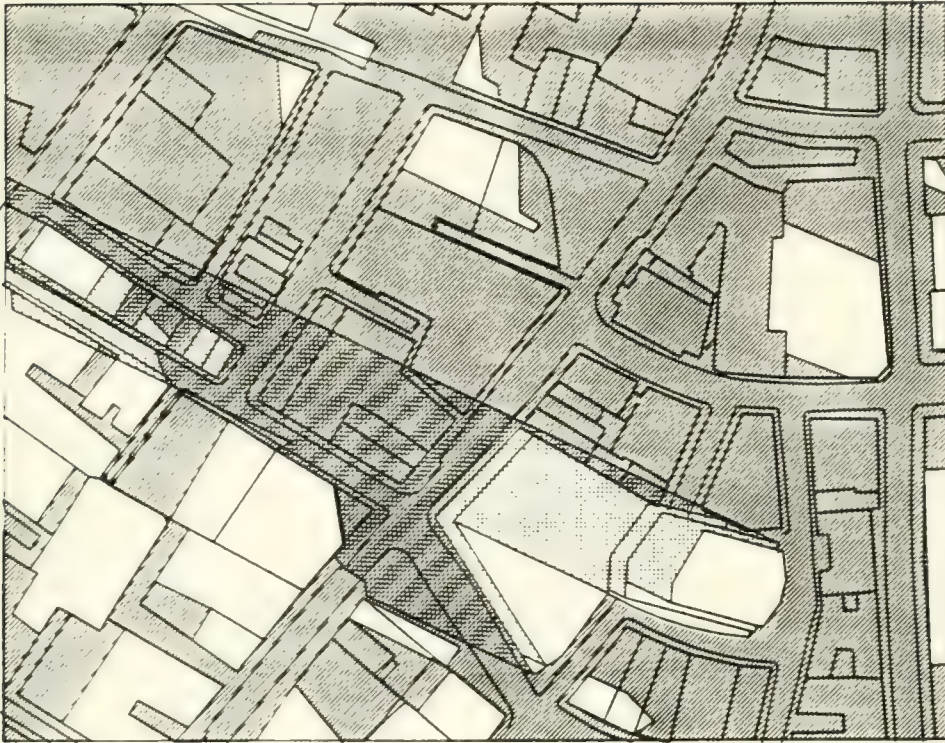
2.4.6 December 21 (Winter Solstice)

At 9:00 A.M. and 3:00 P.M., no additional shadow at street level results from any of the proposed options. At noon, Options A and C shadow the Boston Five Park and the Old South Meeting House, and Option B shadows the Meeting House (Figures IV.2.49 through IV.2.57).

2.5 Conclusions

Options A and C introduce new shadow on the Shadow Impact Area and on the Old Meeting House for limited duration at certain times of the year. In terms of shadow impact, the difference between Schemes A and C is not significant. The area of Shadow Impact Area affected is a small section of Washington Street in front of the Old South Meeting House and the Boston Five Cents Savings Bank. The duration of new shadow on any particular area is under two hours, and therefore all options conform to the requirements of Article 38 of the Boston Zoning Code.

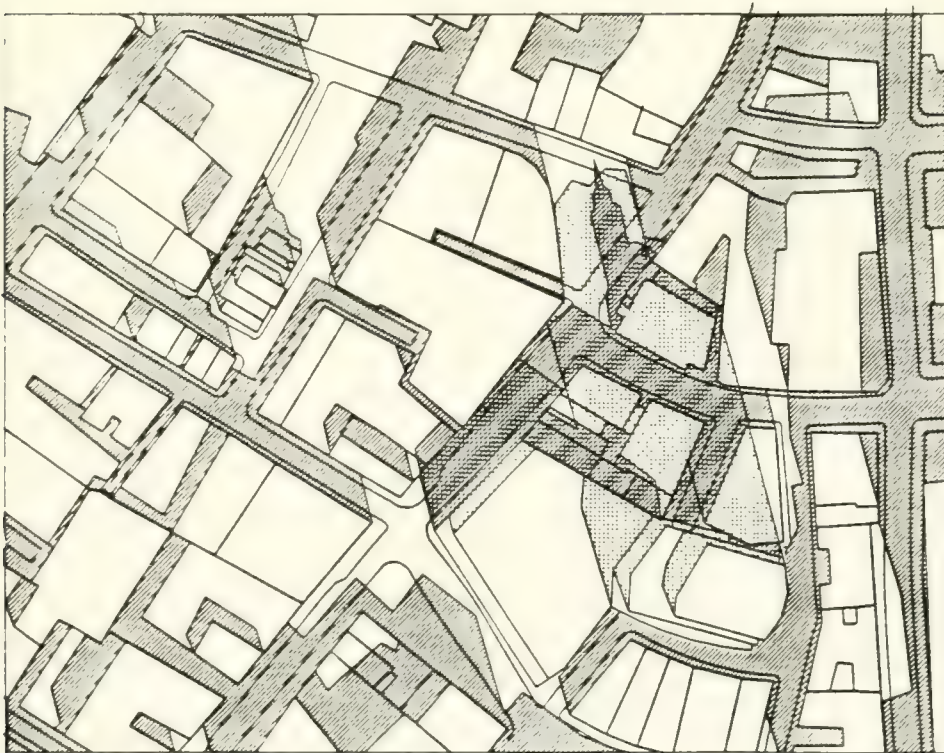
FIGURE IV 2.2



SCHEME A

MARCH 21

9AM



SCHEME A

MARCH 21

12 NOON

FIGURE IV 2.3

FIGURE IV 2.4

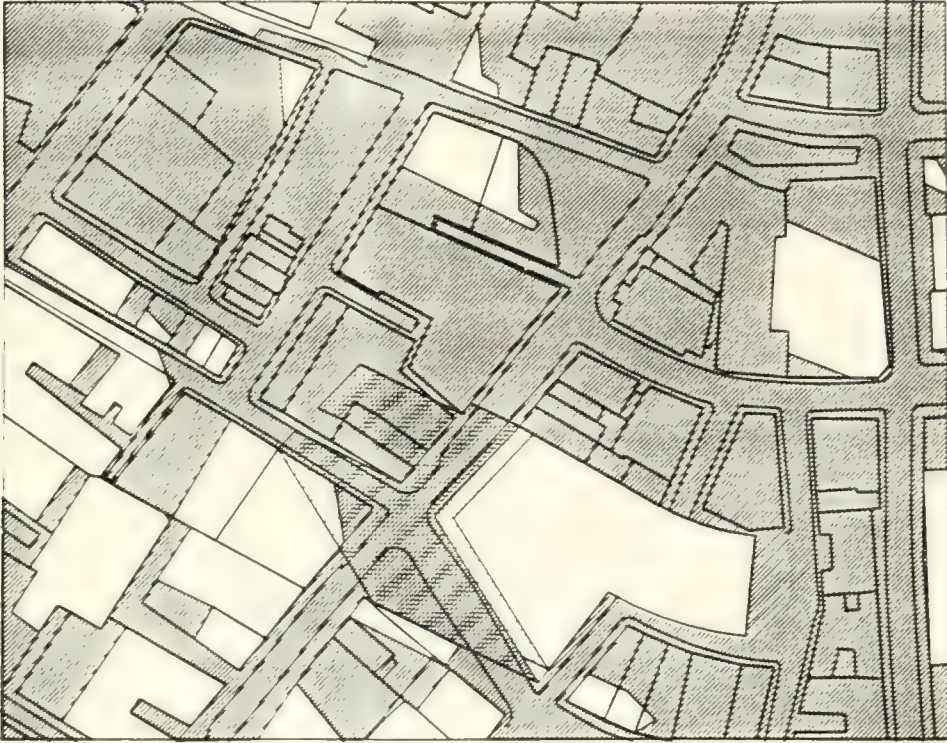


SCHEME A

MARCH 21

3PM

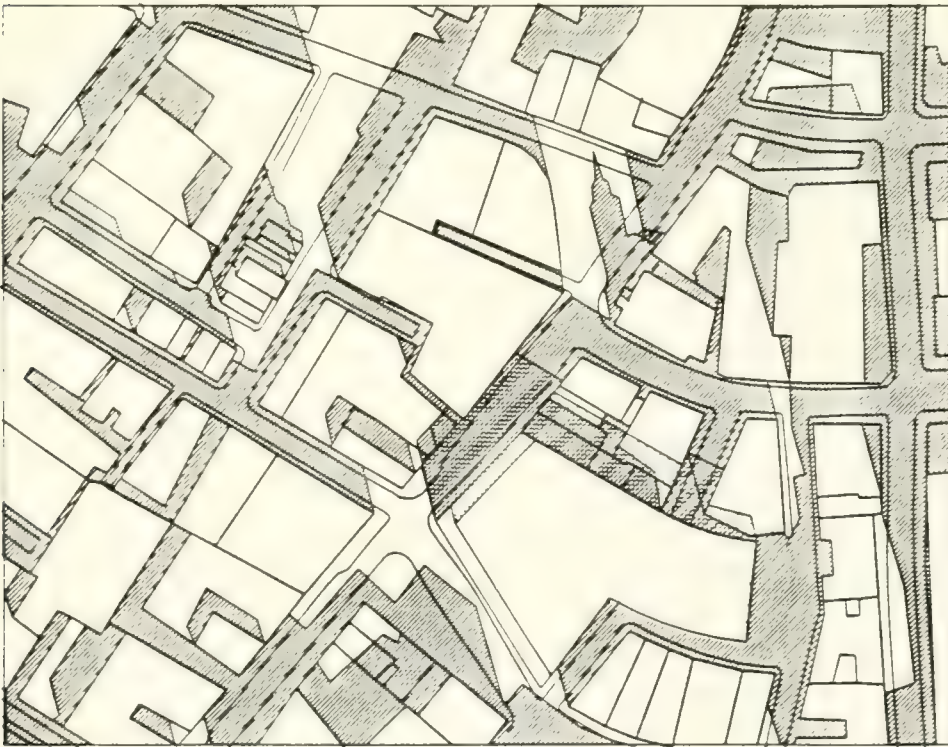
FIGURE IV 2.5



SCHEME B

MARCH 21

9AM



SCHEME B

MARCH 21

12 NOON

FIGURE IV 2.6

FIGURE IV 2.7

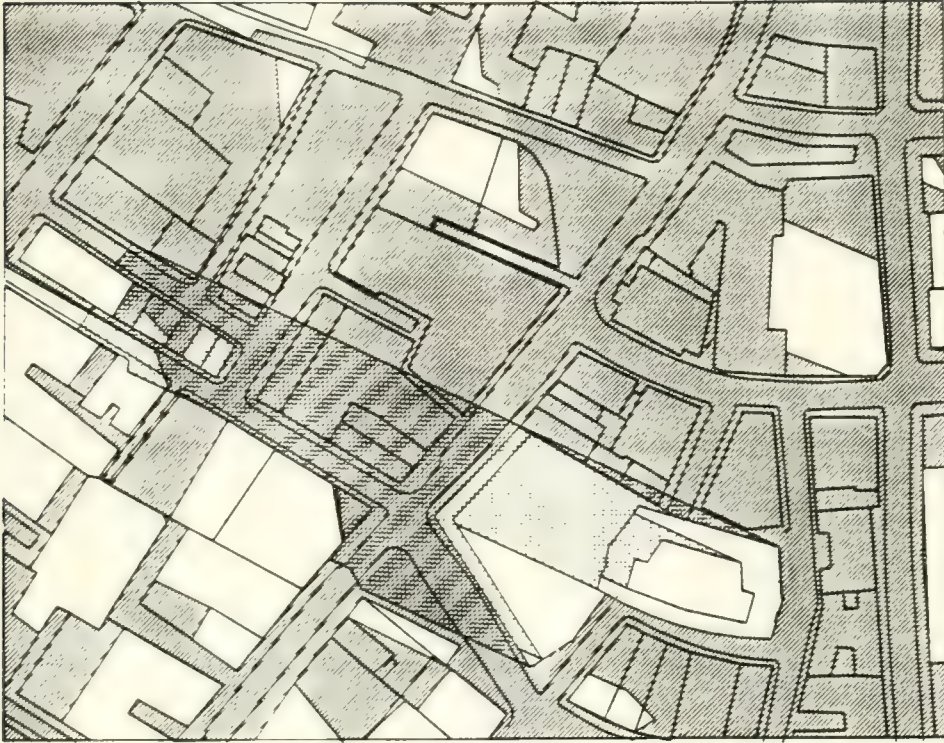


SCHEME B

MARCH 21

3PM

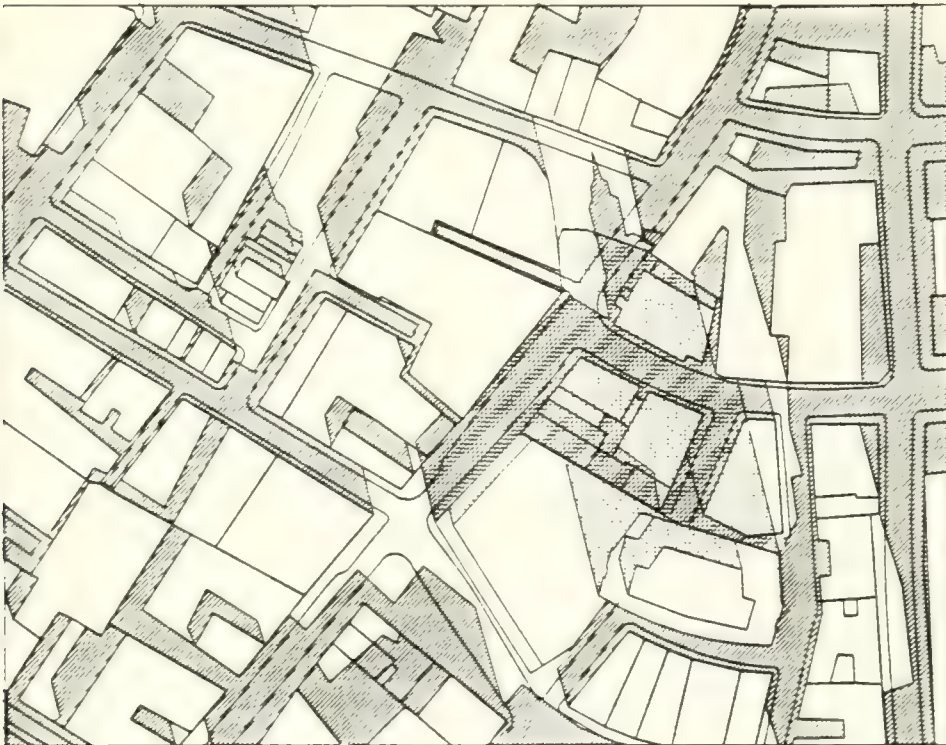
FIGURE IV 2.8



SCHEME C

MARCH 21

9AM



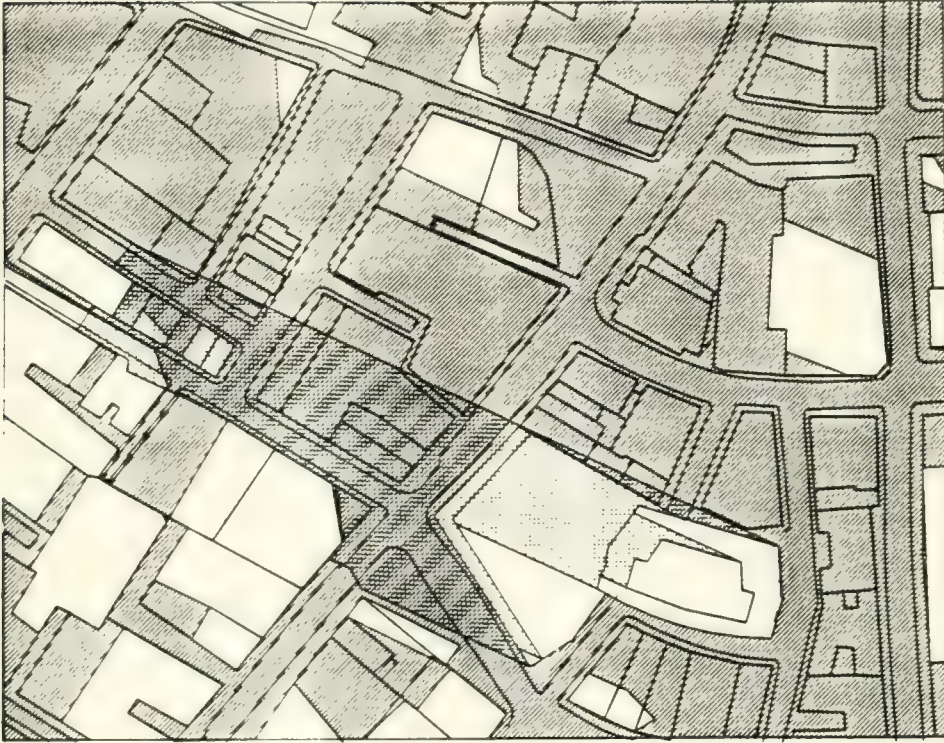
SCHEME C

MARCH 21

12 NOON

FIGURE IV 2.9

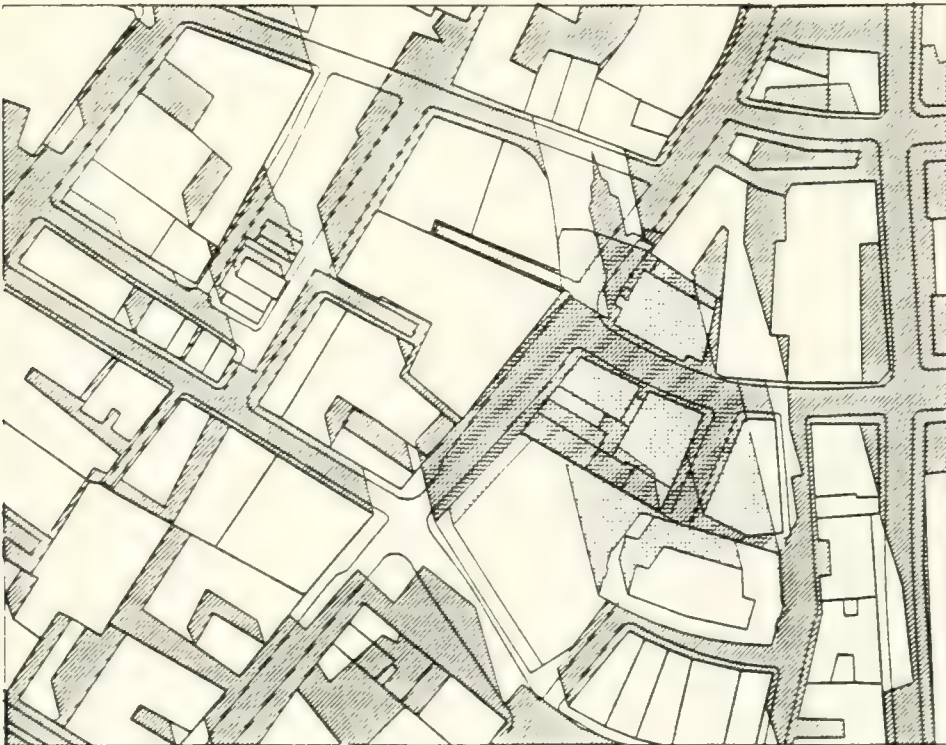
FIGURE IV 2.8



SCHEME C

MARCH 21

9AM



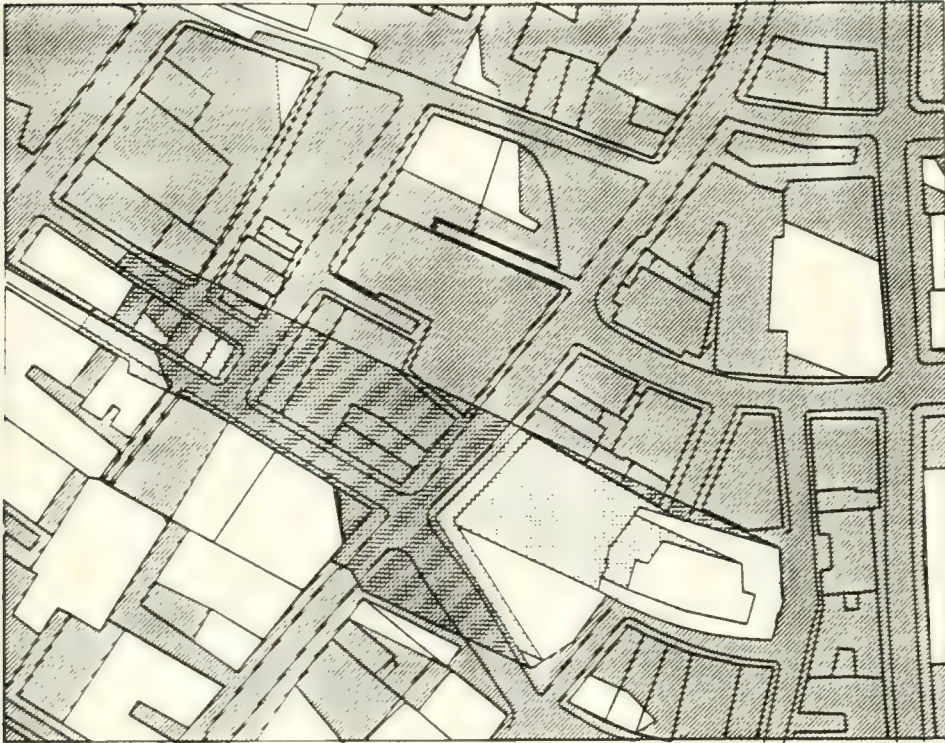
SCHEME C

MARCH 21

12 NOON

FIGURE IV 2.9

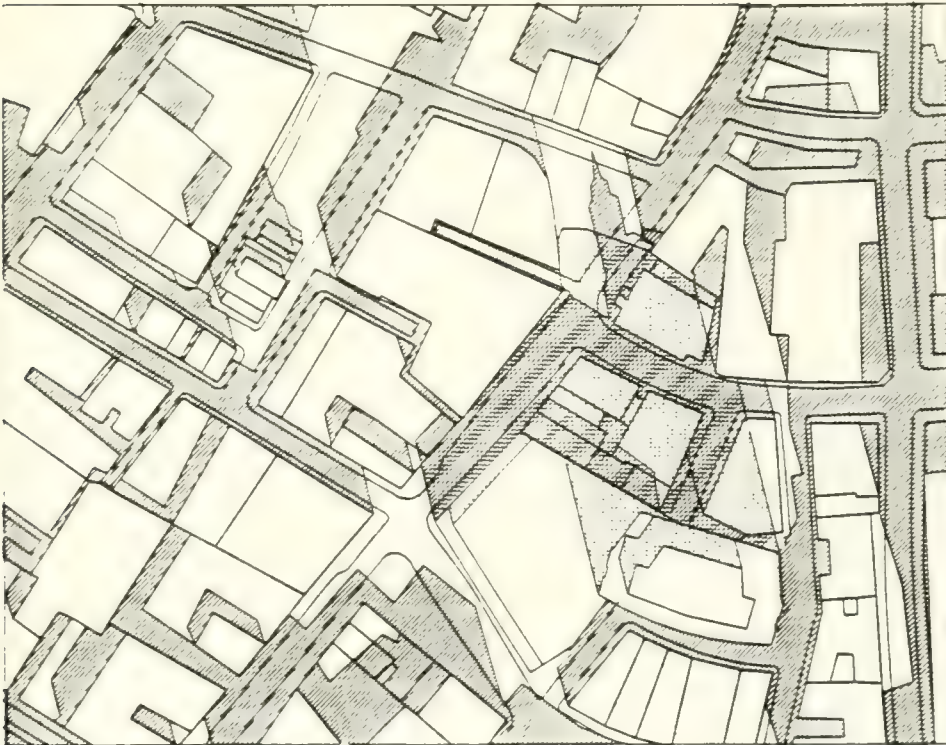
FIGURE IV 2.8



SCHEME C

MARCH 21

9AM

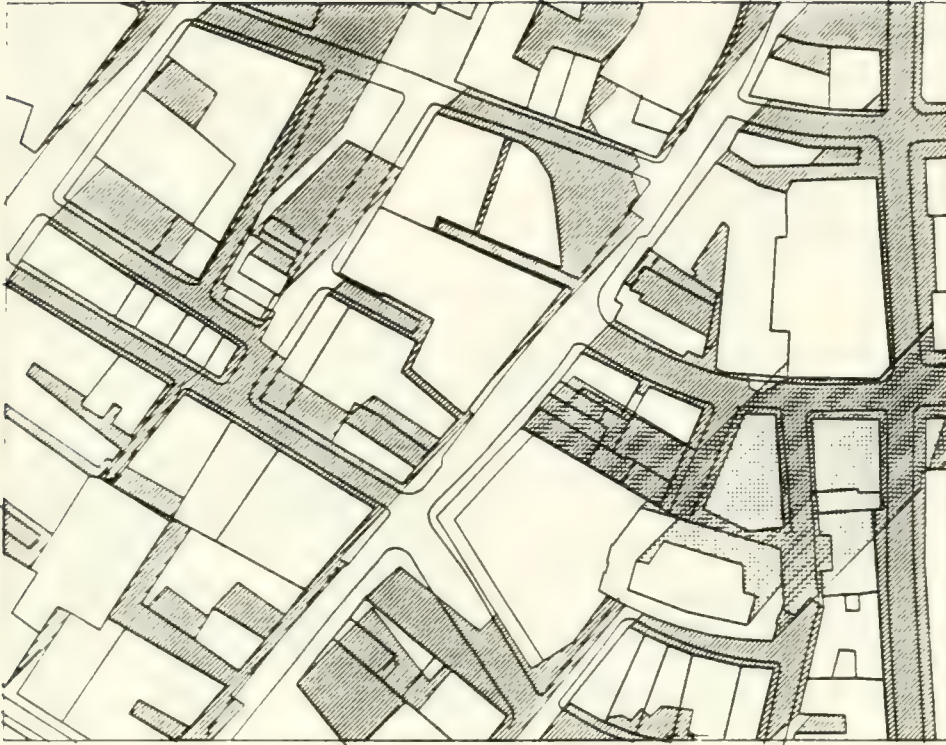


SCHEME C

MARCH 21

12 NOON

FIGURE IV 2.9



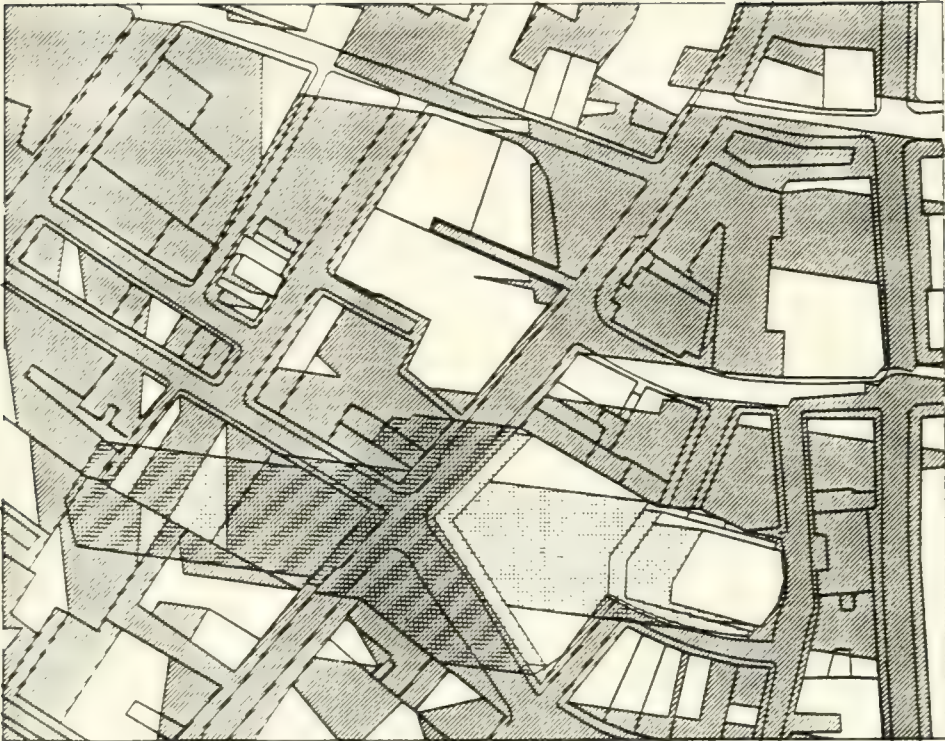
SCHEME C

MARCH 21

3PM

FIGURE IV 2.10

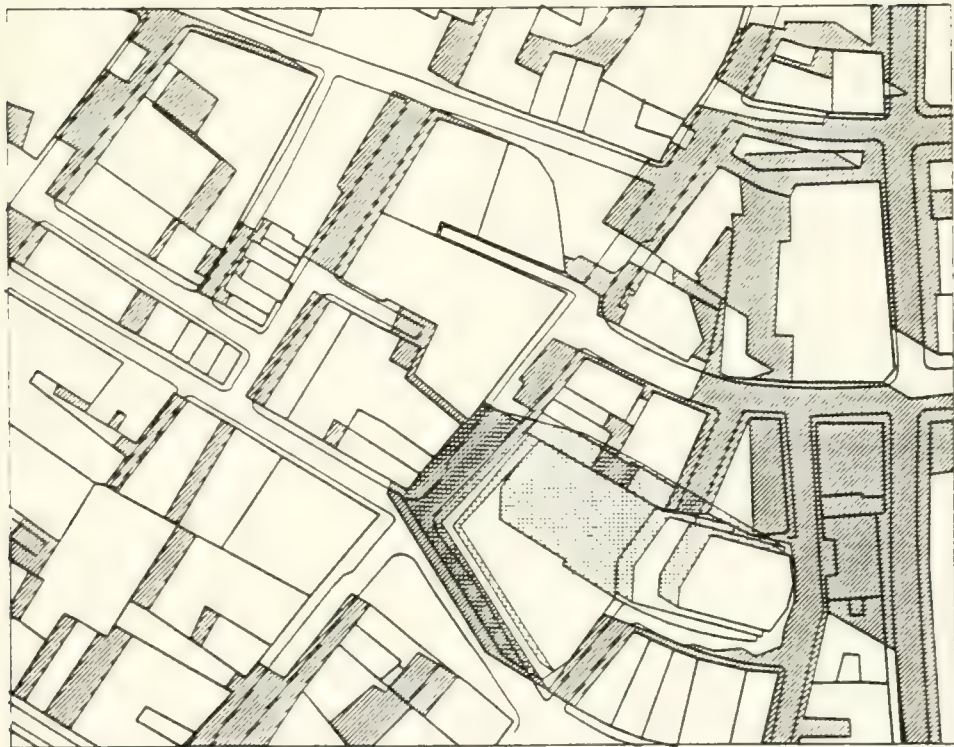
FIGURE IV 2.11



SCHEME A

JUNE 21

9AM



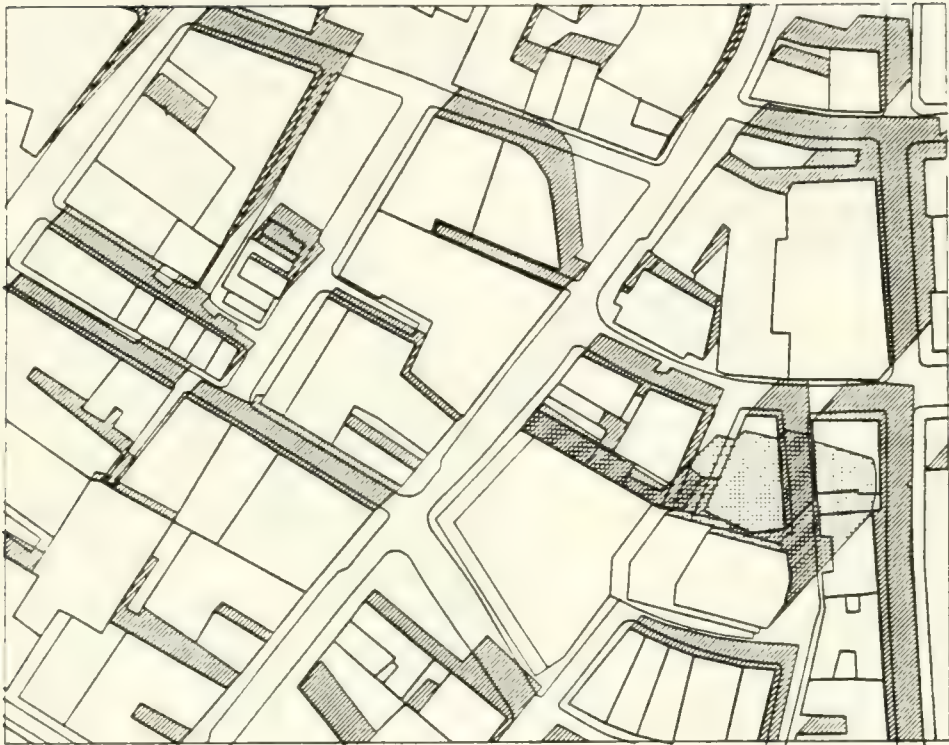
SCHEME A

JUNE 21

12 NOON

FIGURE IV 2.12

FIGURE IV 2.13

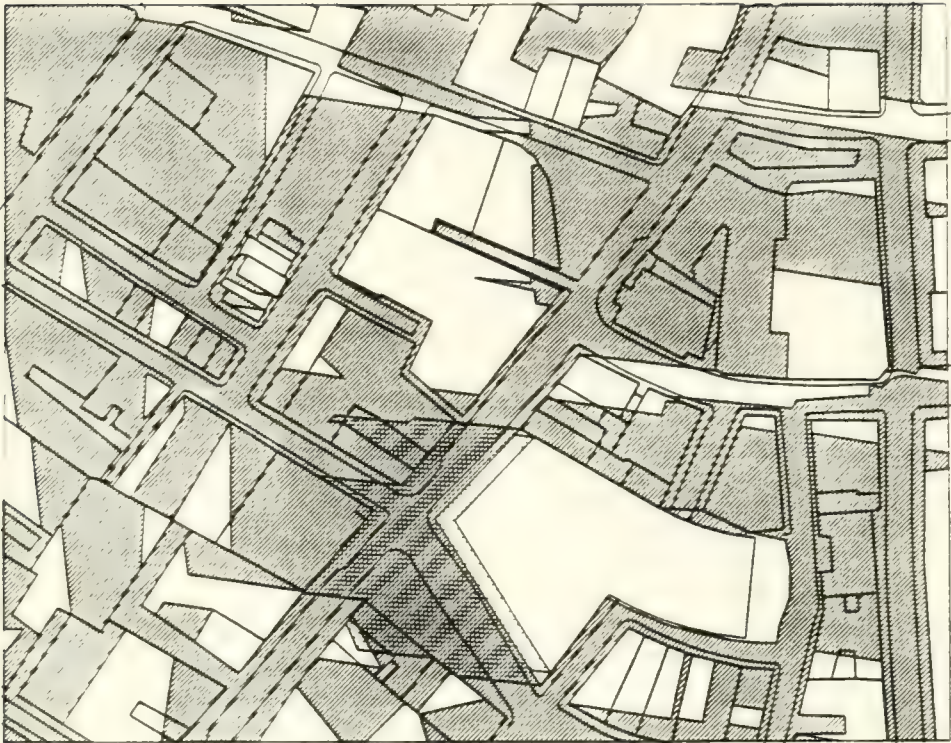


SCHEME A

JUNE 21

3PM

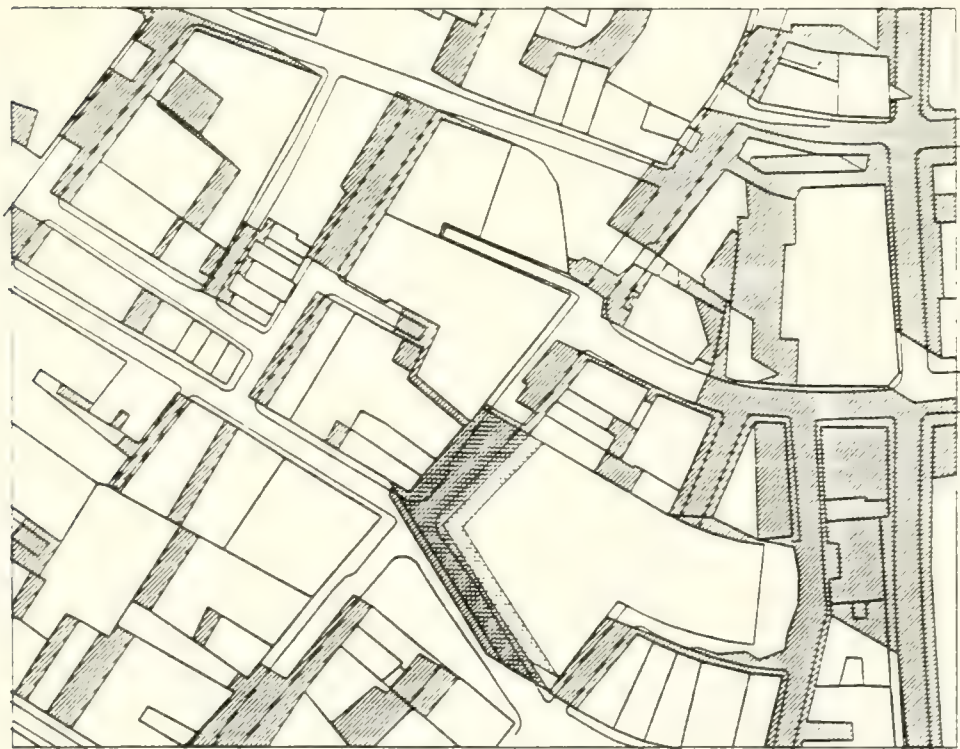
FIGURE IV 2.14



SCHEME B

JUNE 21

9AM



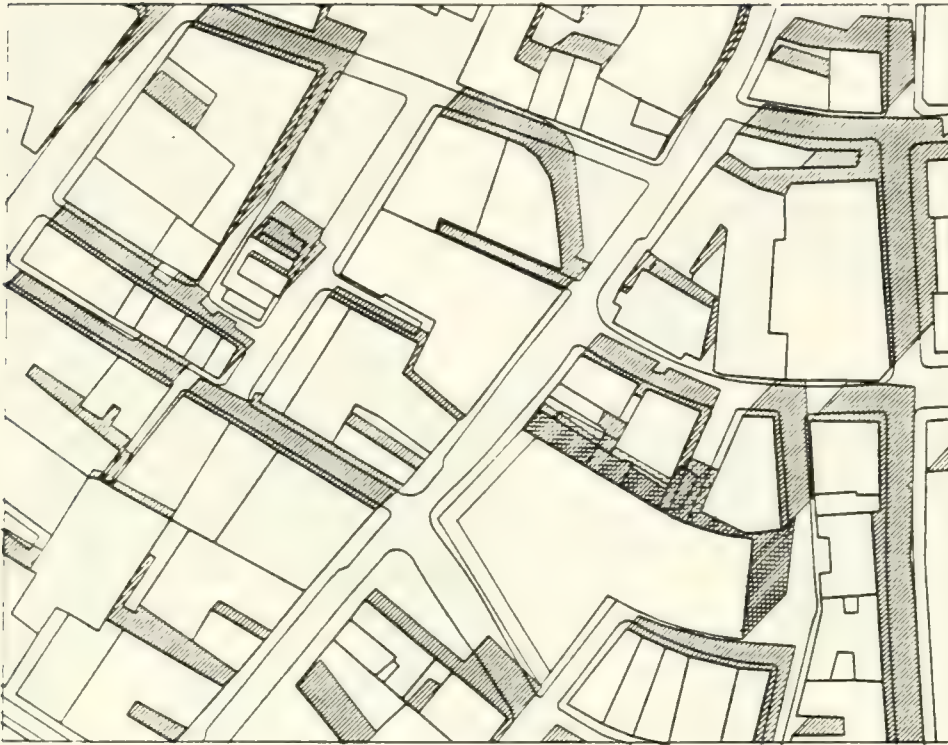
SCHEME B

JUNE 21

12 NOON

FIGURE IV 2.15

FIGURE IV 2.16

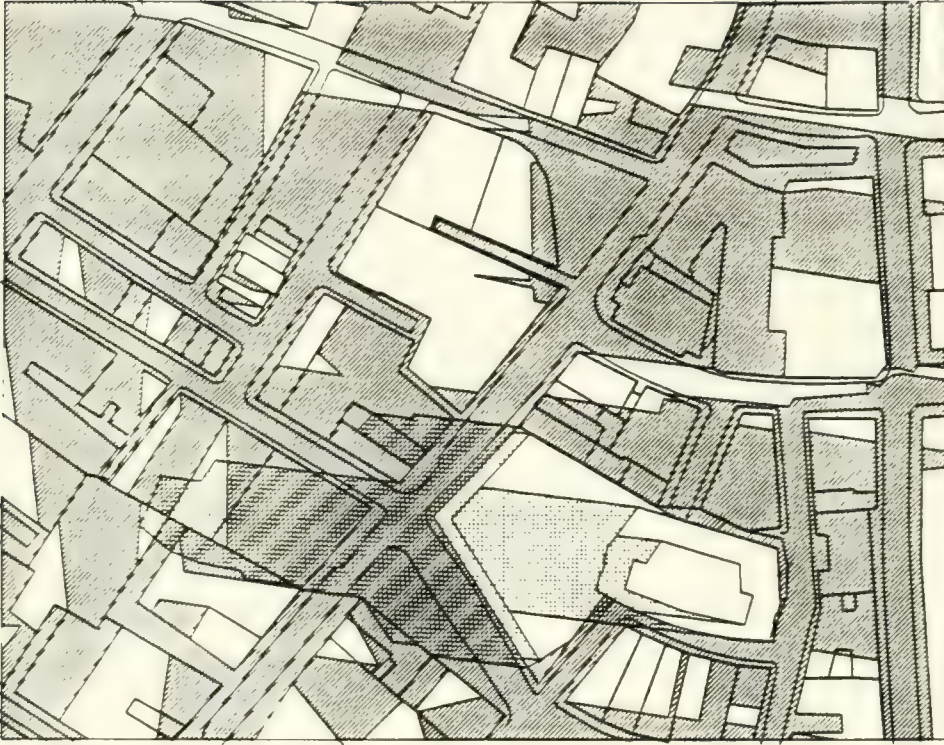


SCHEME B

JUNE 21

3PM

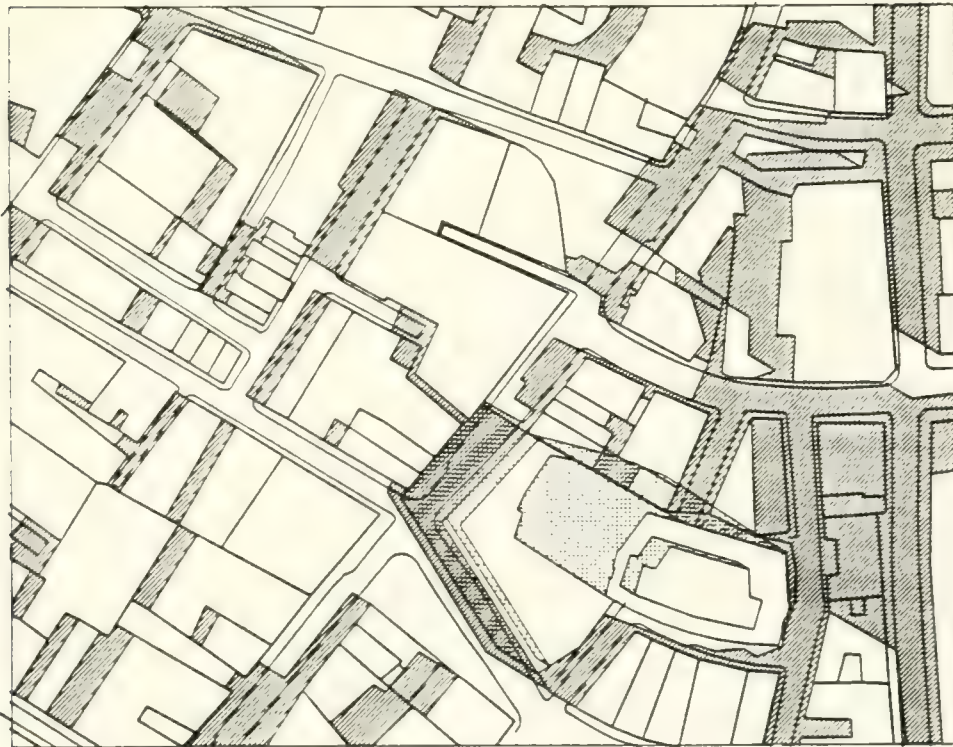
FIGURE IV 2.17



SCHEME C

JUNE 21

9AM



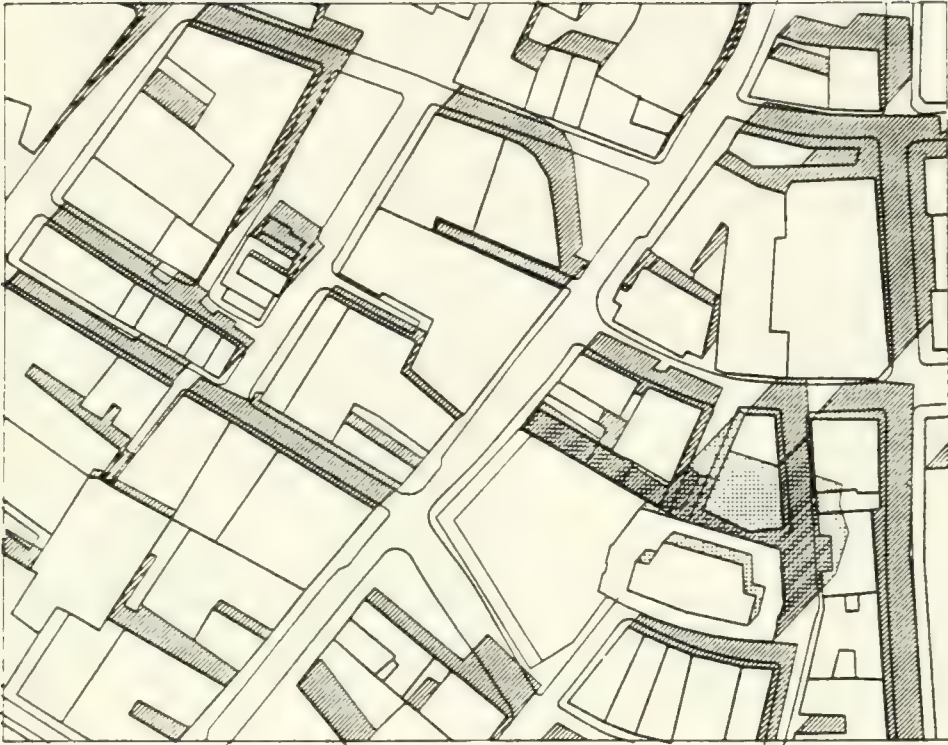
SCHEME C

JUNE 21

12 NOON

FIGURE IV 2.18

FIGURE IV 2.19

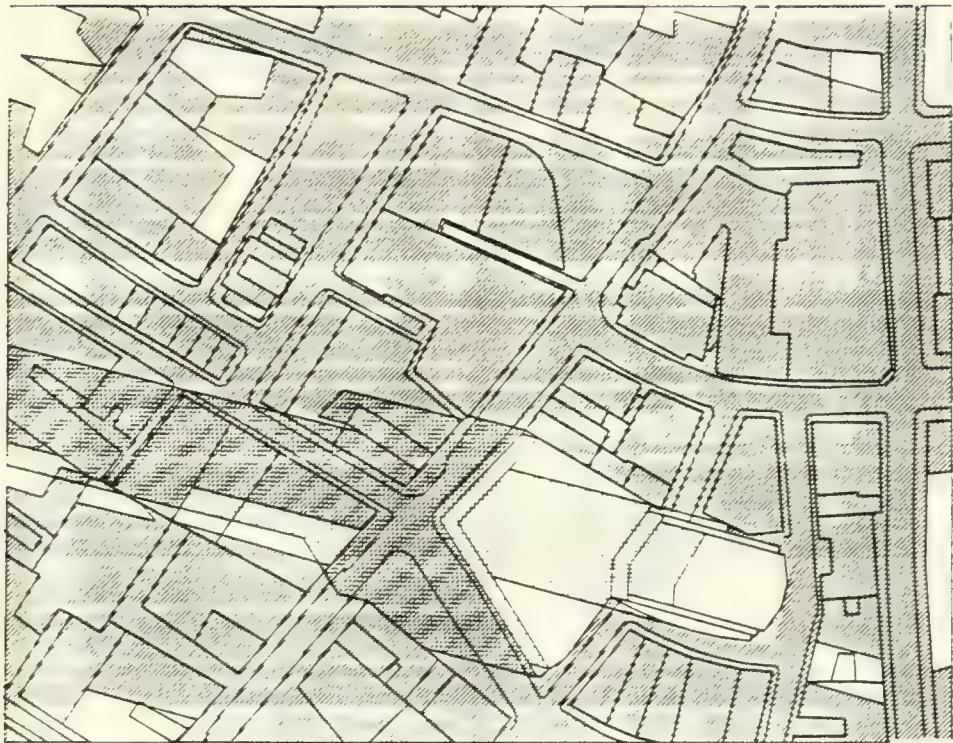


SCHEME C

JUNE 21

3PM

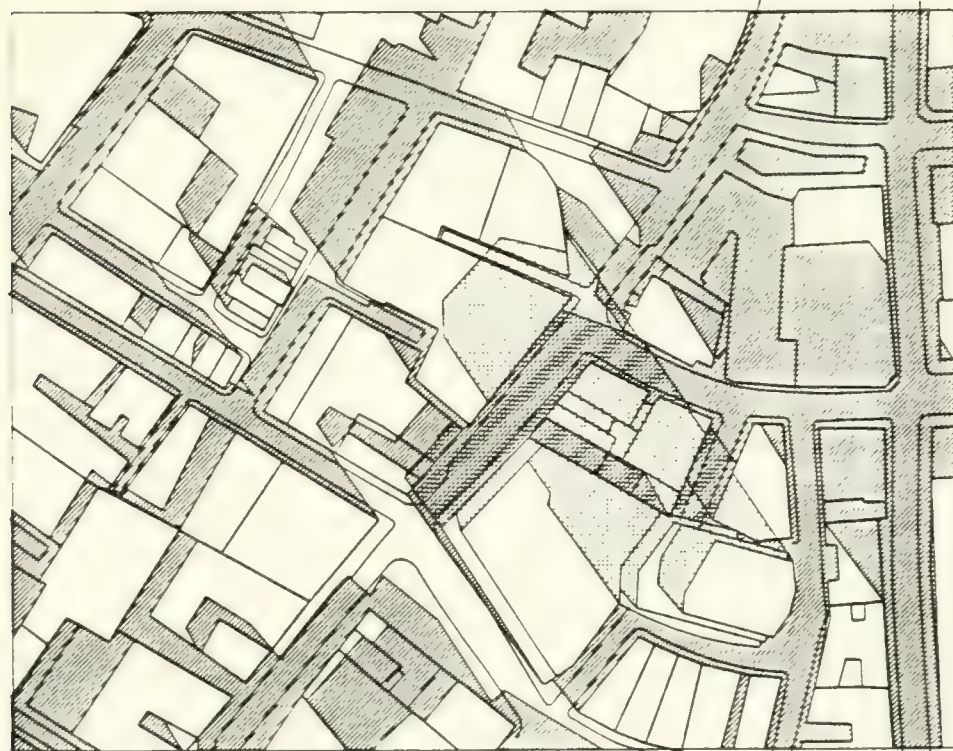
FIGURE IV 2.20



SCHEME A

SEPTEMBER 21

9AM



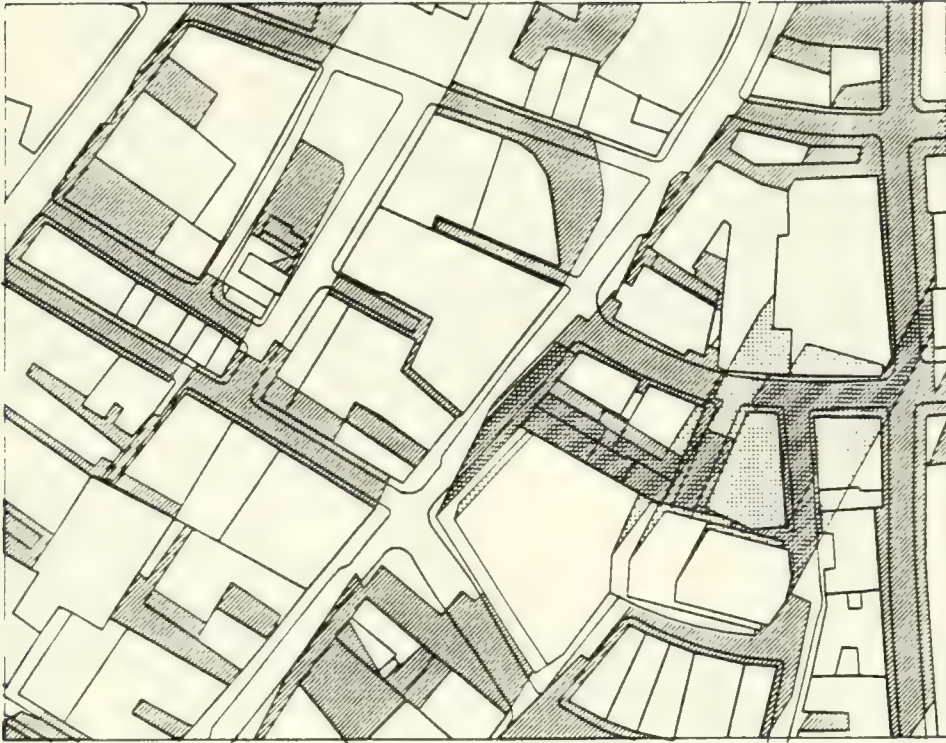
SCHEME A

SEPTEMBER 21

12 NOON

FIGURE IV 2.21

FIGURE IV 2.22

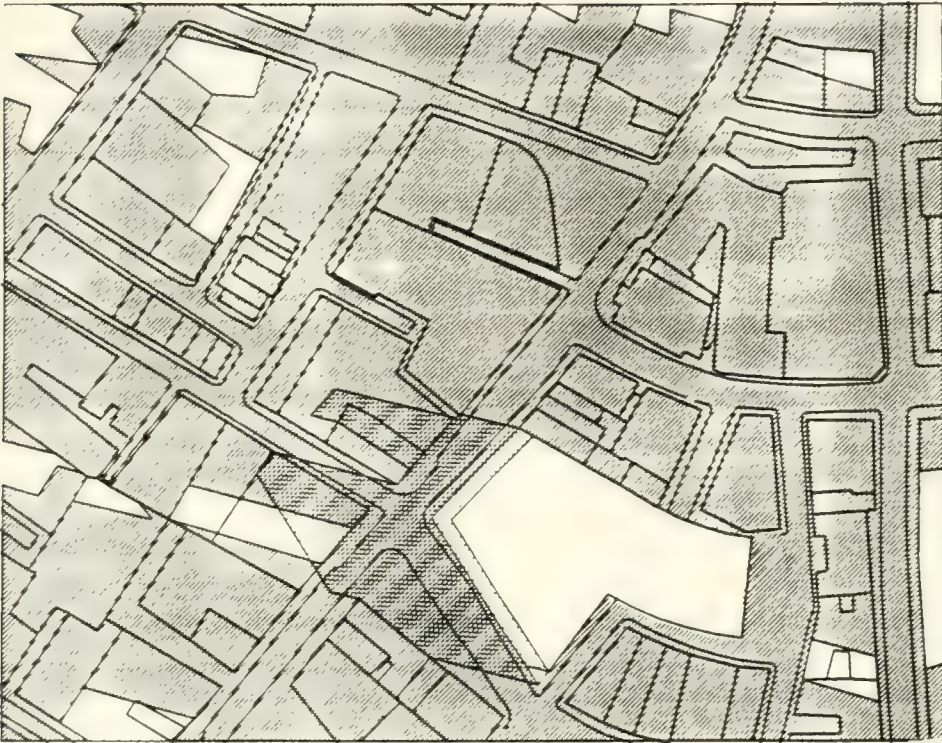


SCHEME A

SEPTEMBER 21

3PM

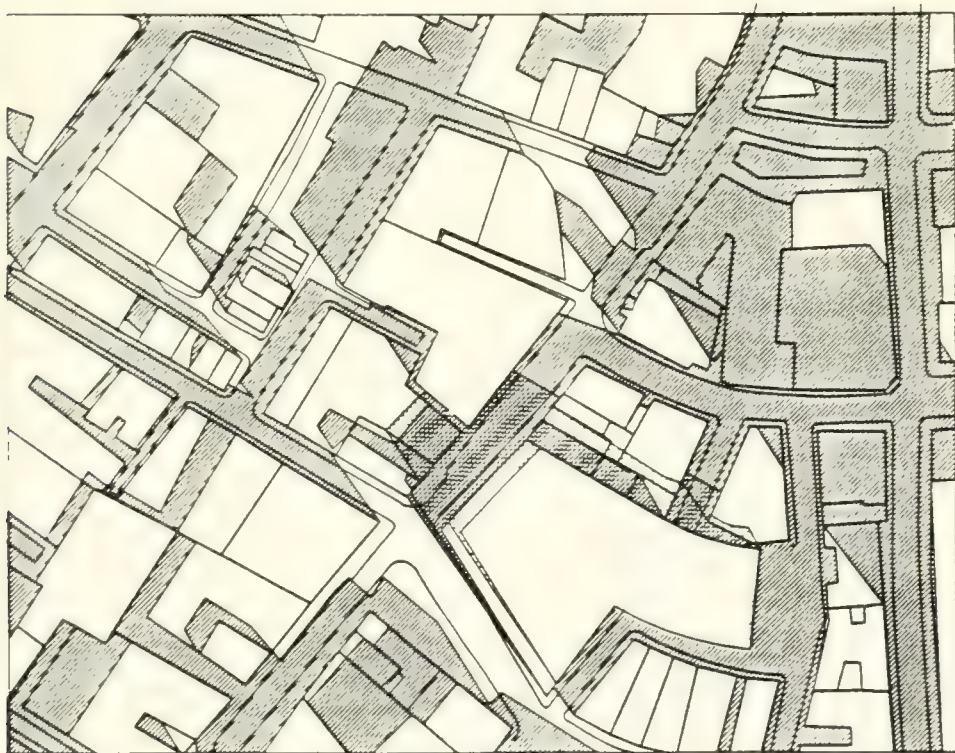
FIGURE IV 2.23



SCHEME B

SEPTEMBER 21

9AM



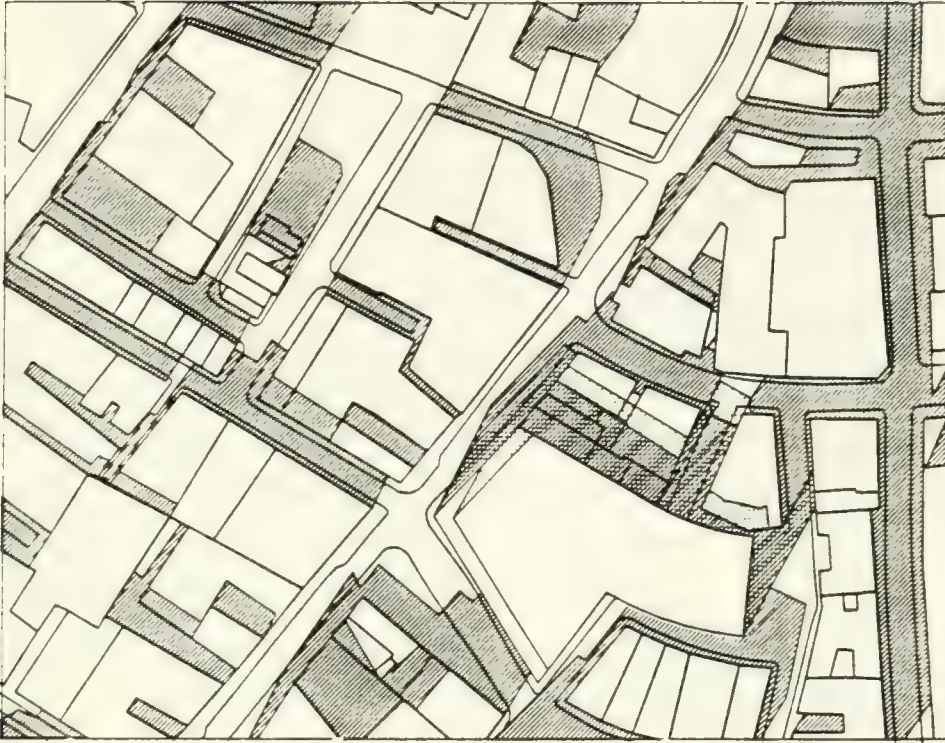
SCHEME B

SEPTEMBER 21

12 NOON

FIGURE IV 2.24

FIGURE IV 2.25



SCHEME B

SEPTEMBER 21

3PM

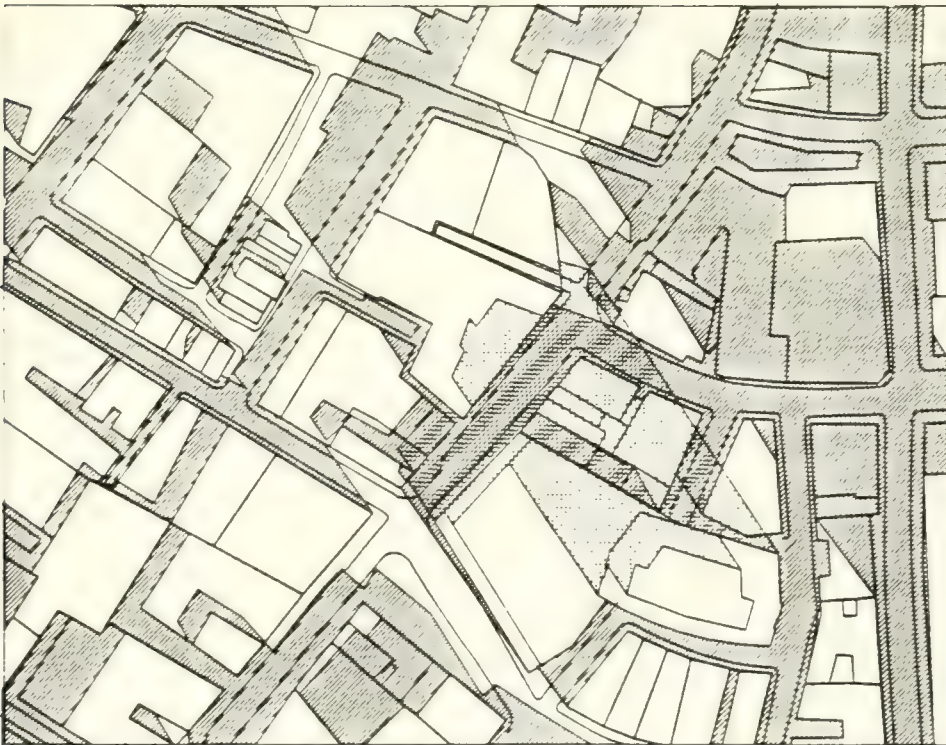
FIGURE IV 2.26



SCHEME C

SEPTEMBER 21

9AM



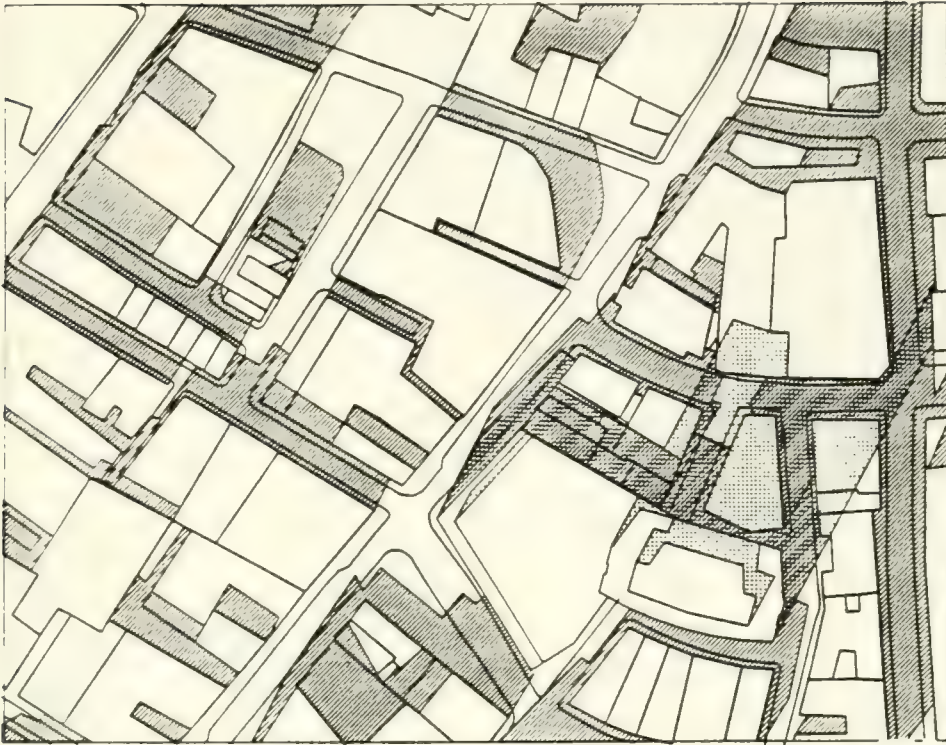
SCHEME C

SEPTEMBER 21

12 NOON

FIGURE IV 2.27

FIGURE IV 2 28

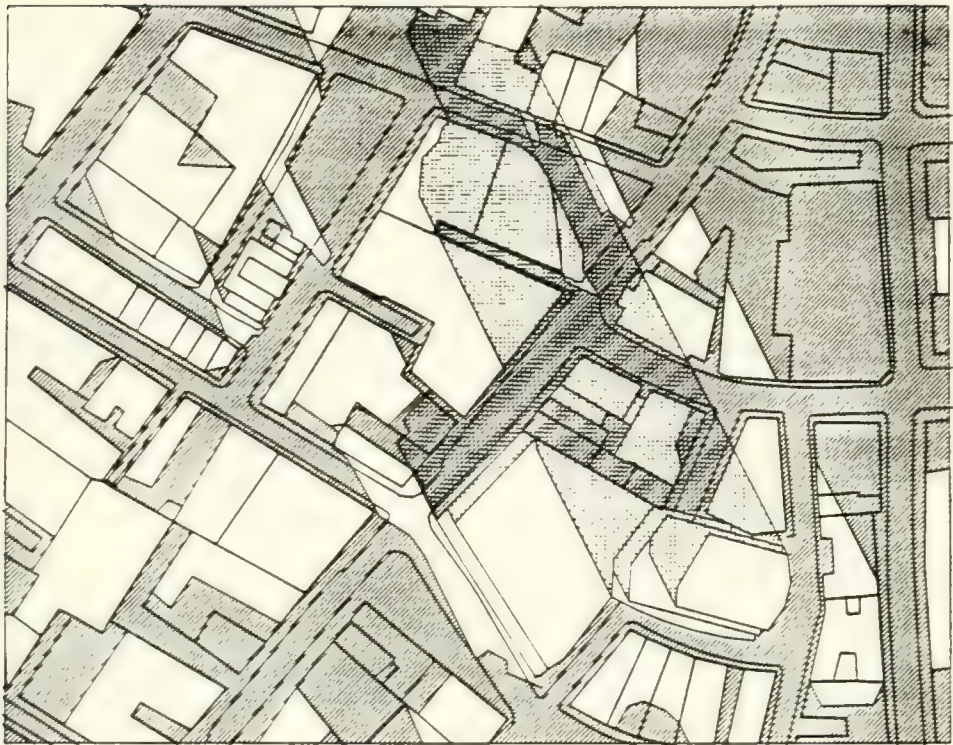


SCHEME C

SEPTEMBER 21

3PM

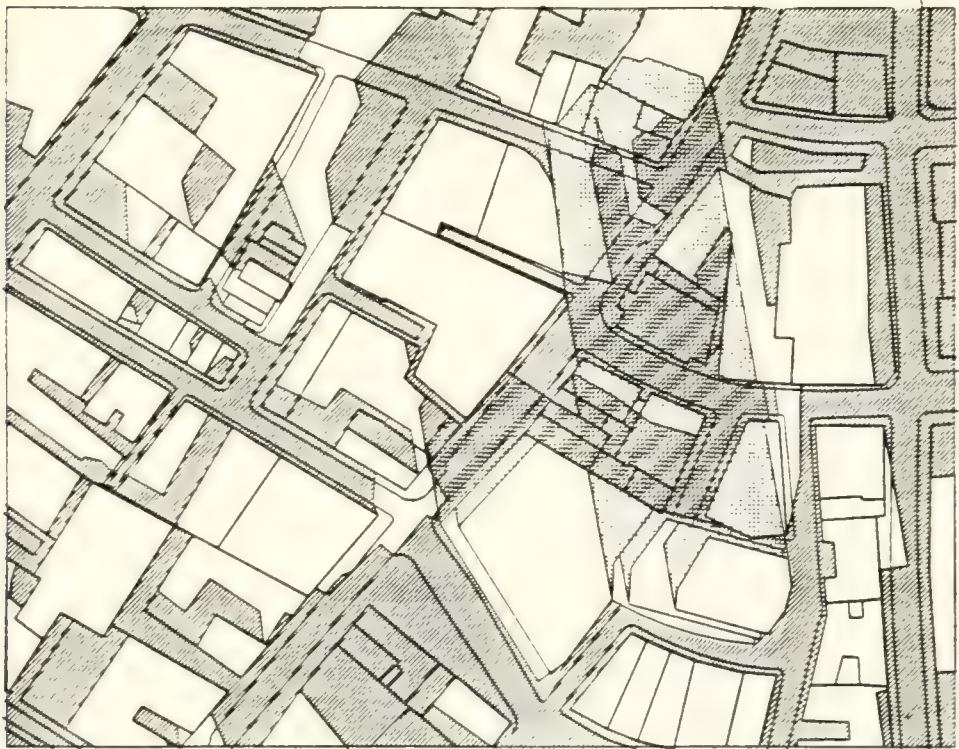
FIGURE IV 2.31



SCHEME A

OCTOBER 21

12 NOON



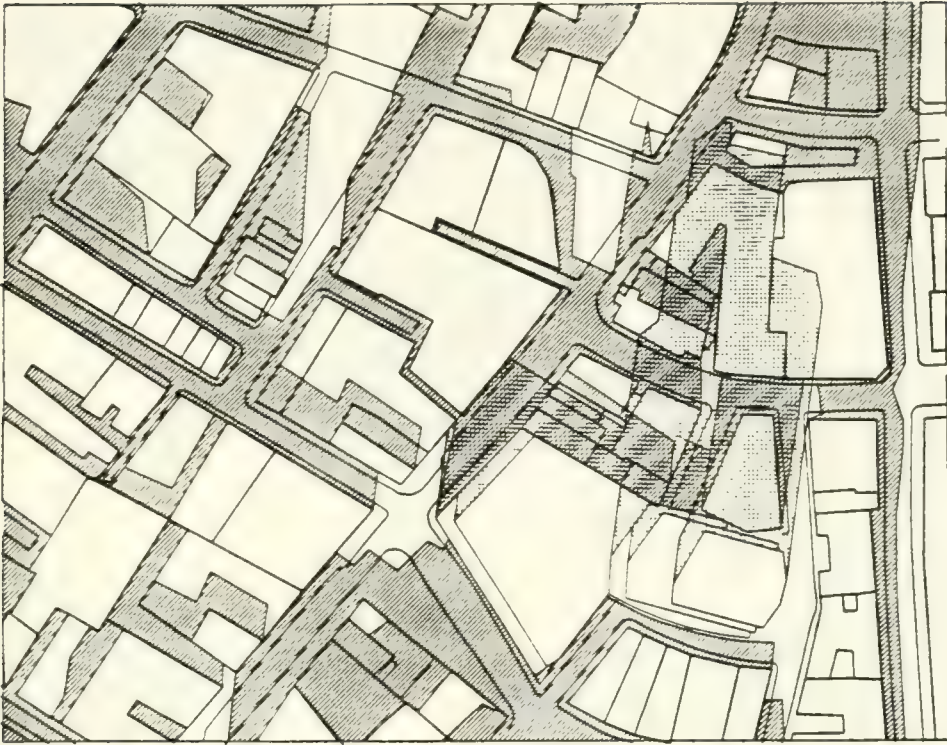
SCHEME A

OCTOBER 21

1PM

FIGURE IV 2.32

FIGURE IV 2.33

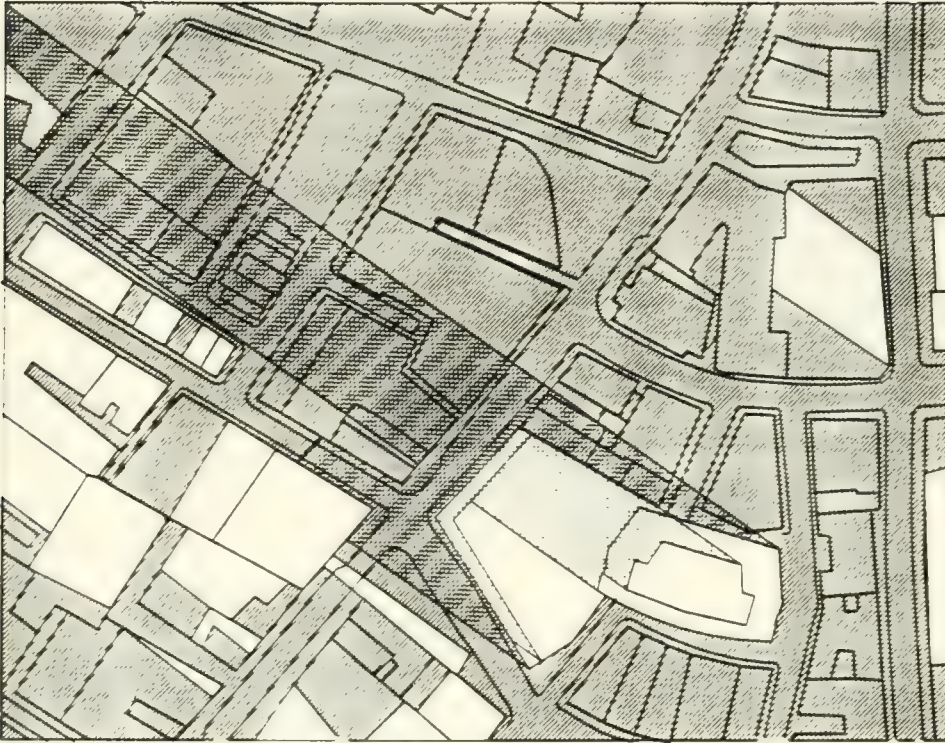


SCHEME A

OCTOBER 21

2PM

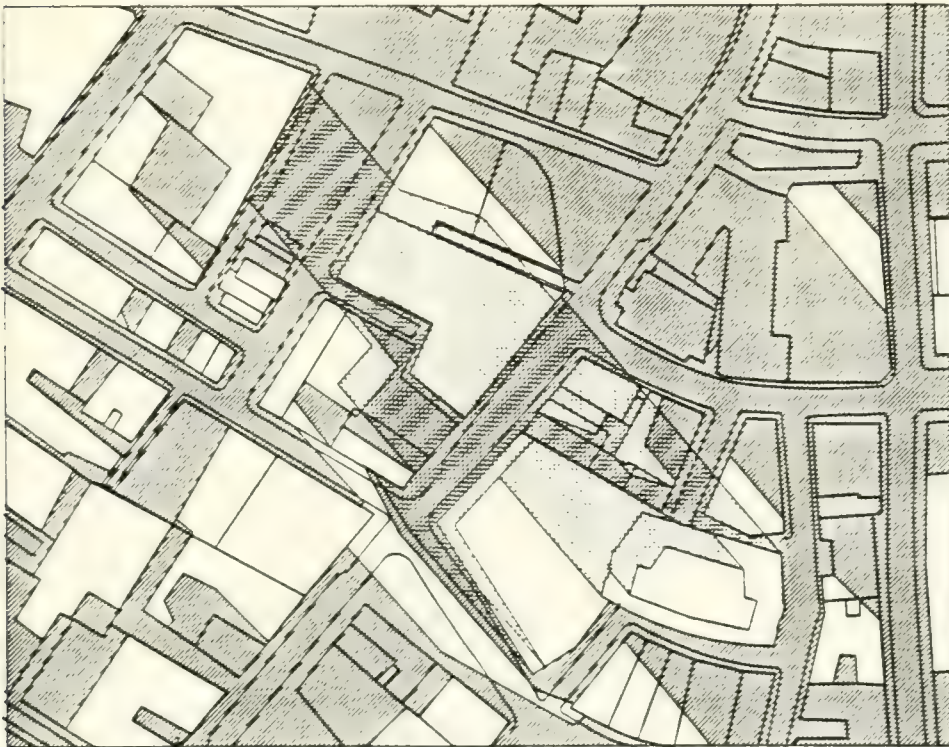
FIGURE IV 2.34



SCHEME C

OCTOBER 21

10AM



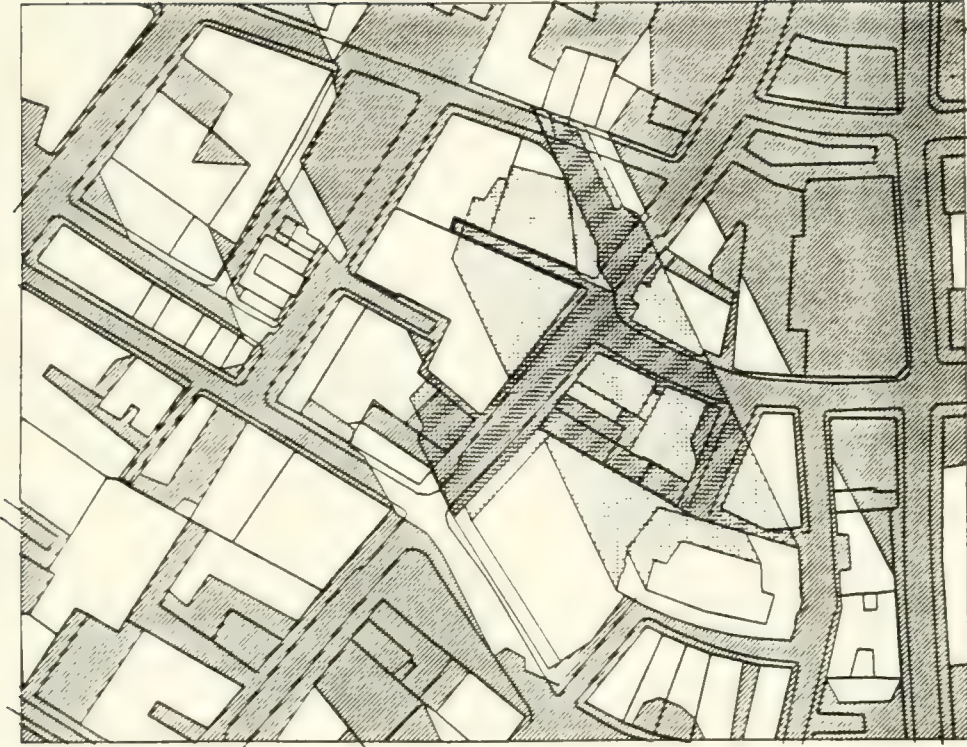
SCHEME C

OCTOBER 21

11AM

FIGURE IV 2.35

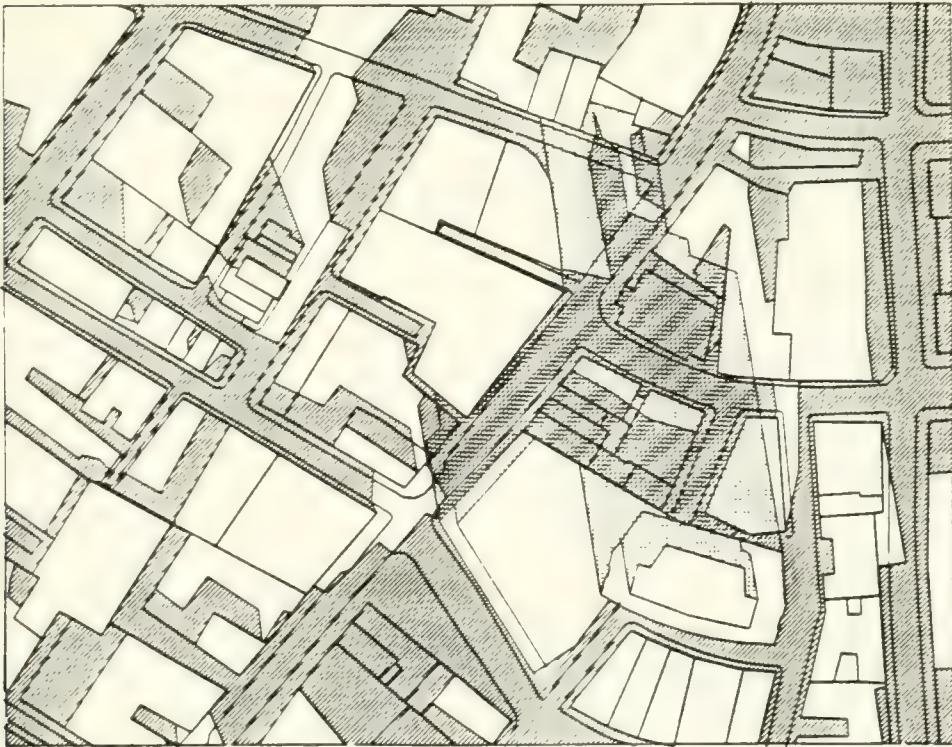
FIGURE IV 2.36



SCHEME C

OCTOBER 21

12 NOON



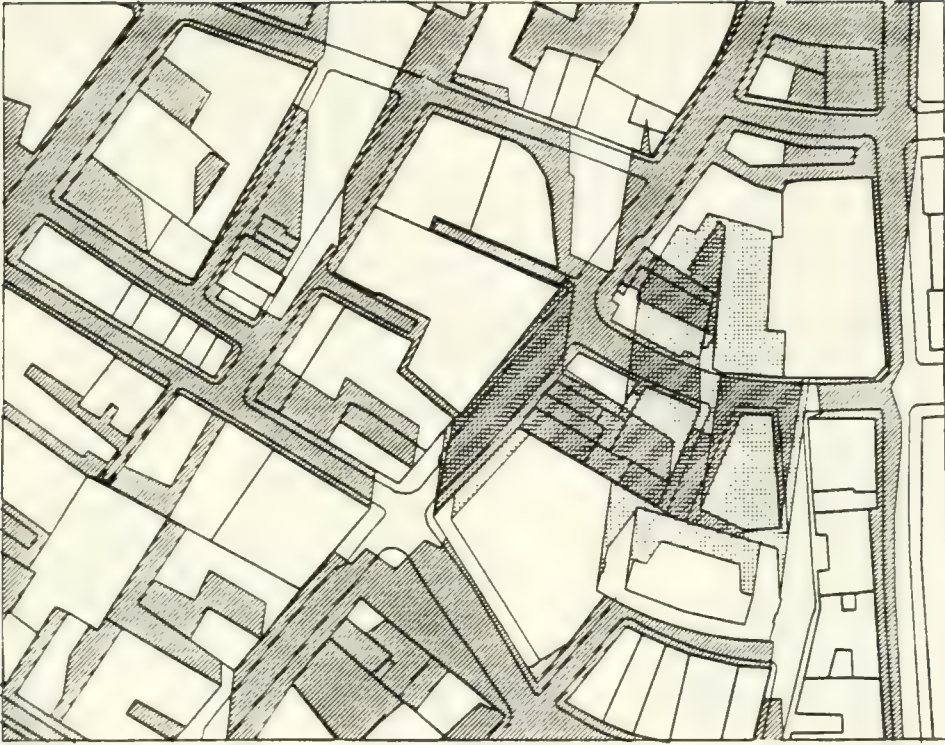
SCHEME C

OCTOBER 21

1 PM

FIGURE IV 2.37

FIGURE IV 2.38



SCHEME C

OCTOBER 21

2PM

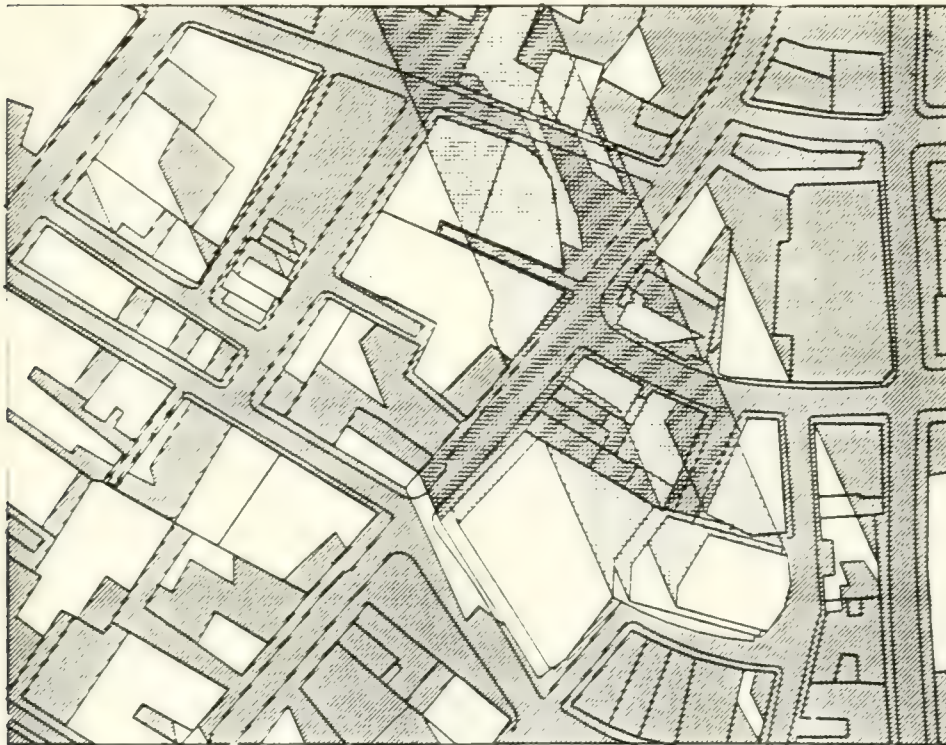
FIGURE IV 2.39



SCHEME A

NOVEMBER 21

10AM



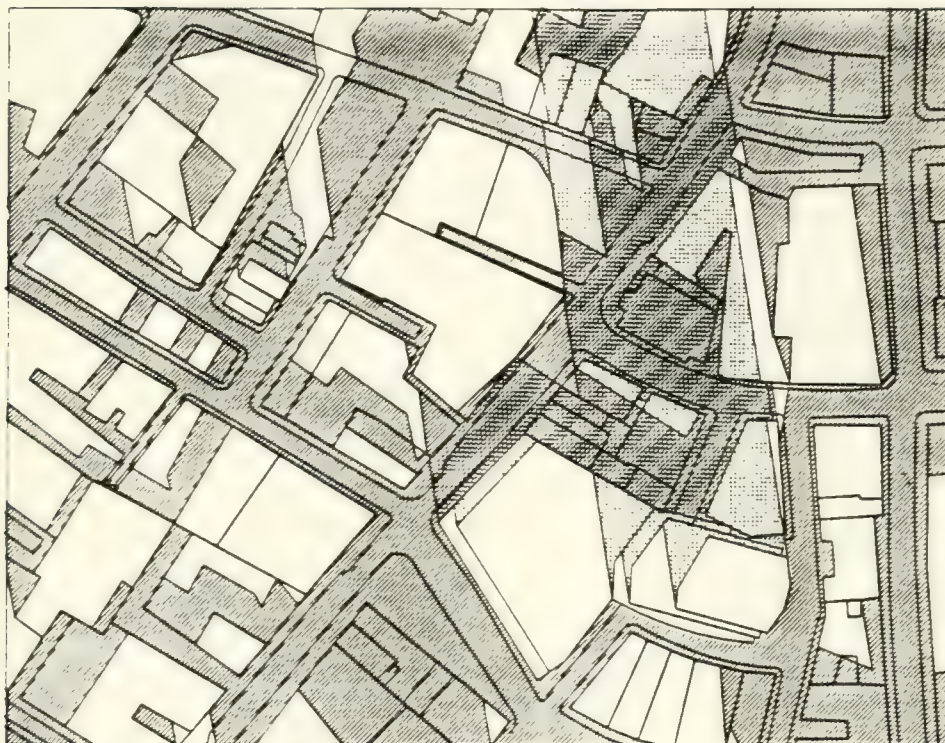
SCHEME A

NOVEMBER 21

11AM

FIGURE IV 2.40

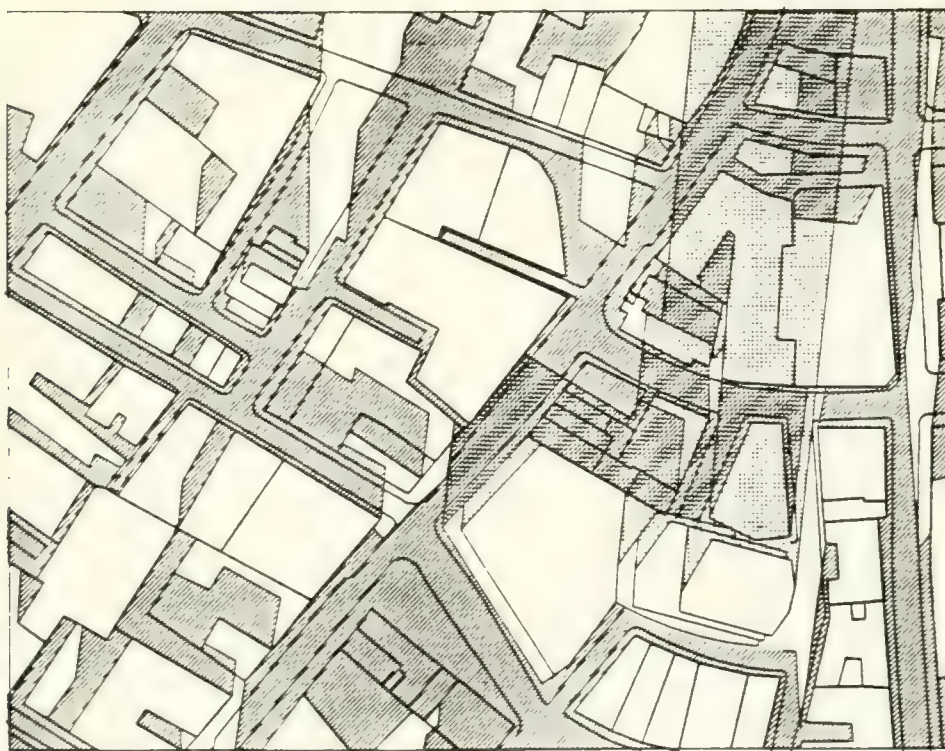
FIGURE IV 2.41



SCHEME A

NOVEMBER 21

12 NOON



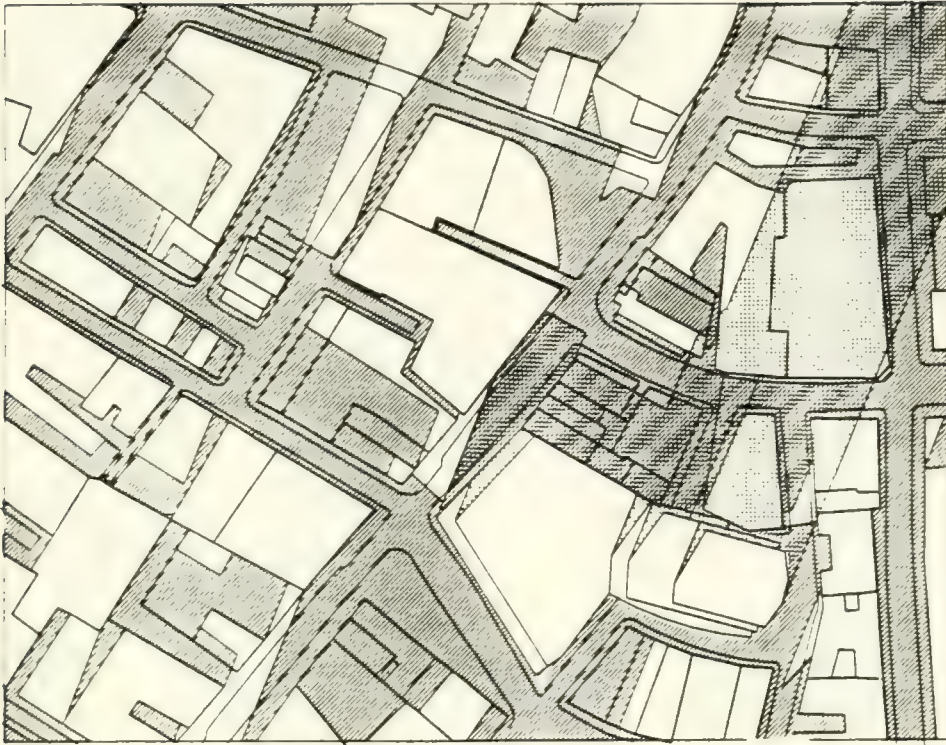
SCHEME A

NOVEMBER 21

1PM

FIGURE IV 2.42

FIGURE IV 2.43



SCHEME A

NOVEMBER 21

2PM

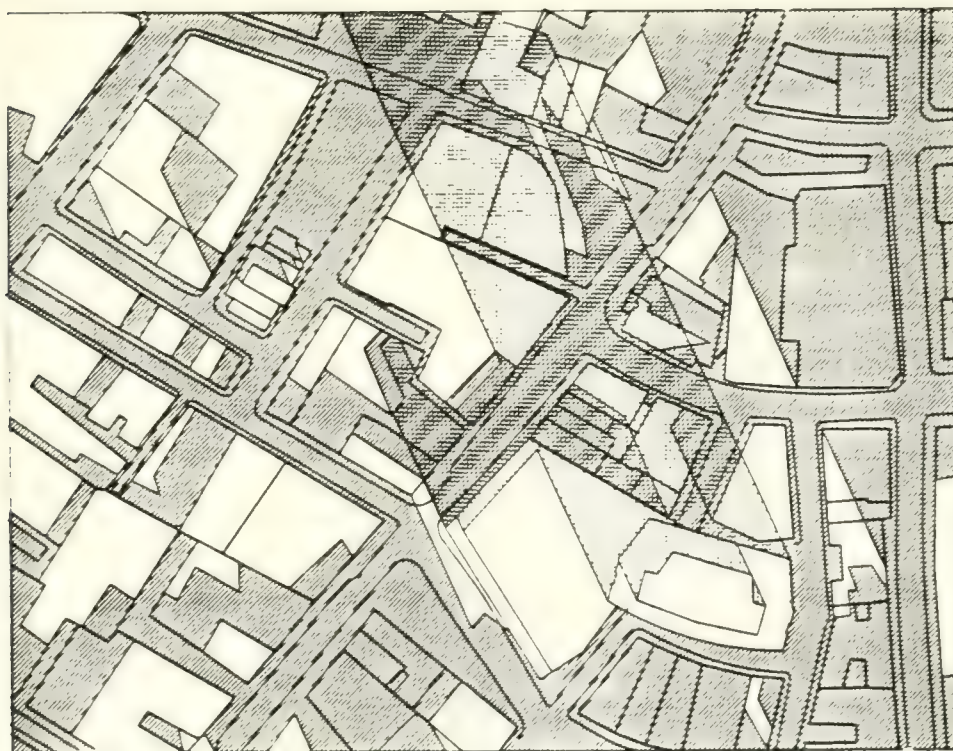
FIGURE IV 2.44



SCHEME C

NOVEMBER 21

10AM



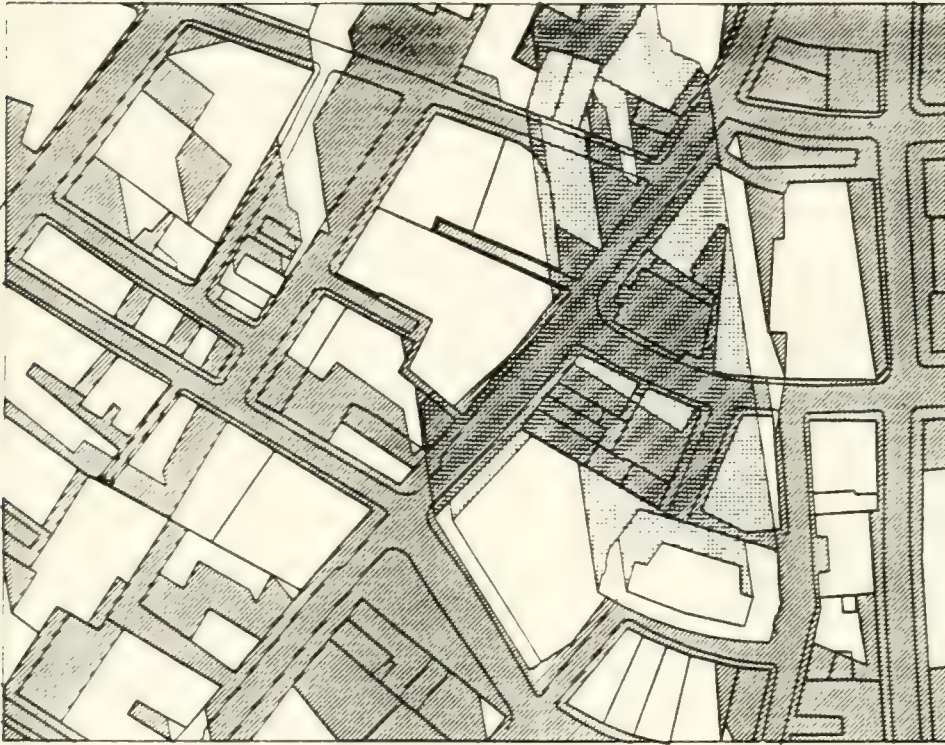
SCHEME C

NOVEMBER 21

11AM

FIGURE IV 2.45

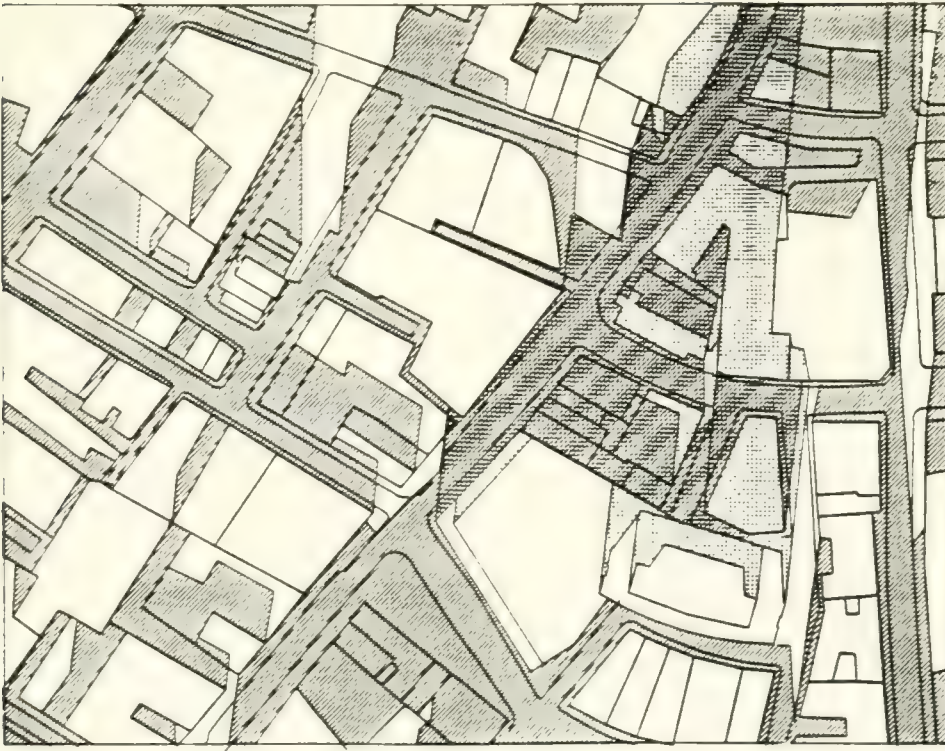
FIGURE IV 2.46



SCHEME C

NOVEMBER 21

12 NOON



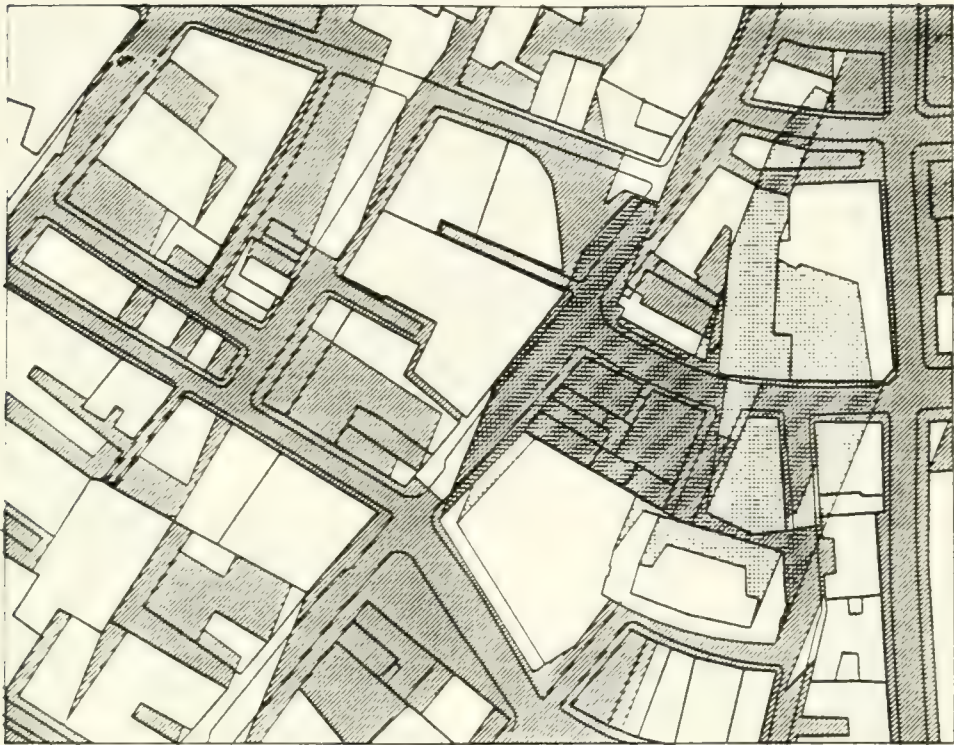
SCHEME C

NOVEMBER 21

1PM

FIGURE IV 2.47

FIGURE IV 2.48

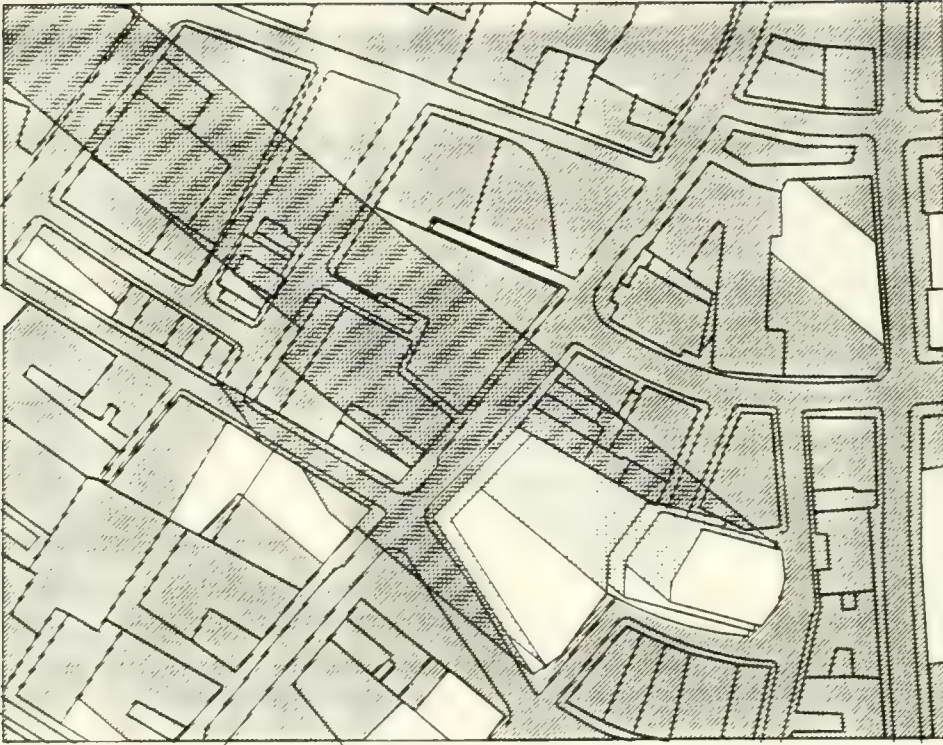


SCH. ME C

NOVEMBER 21

2PM

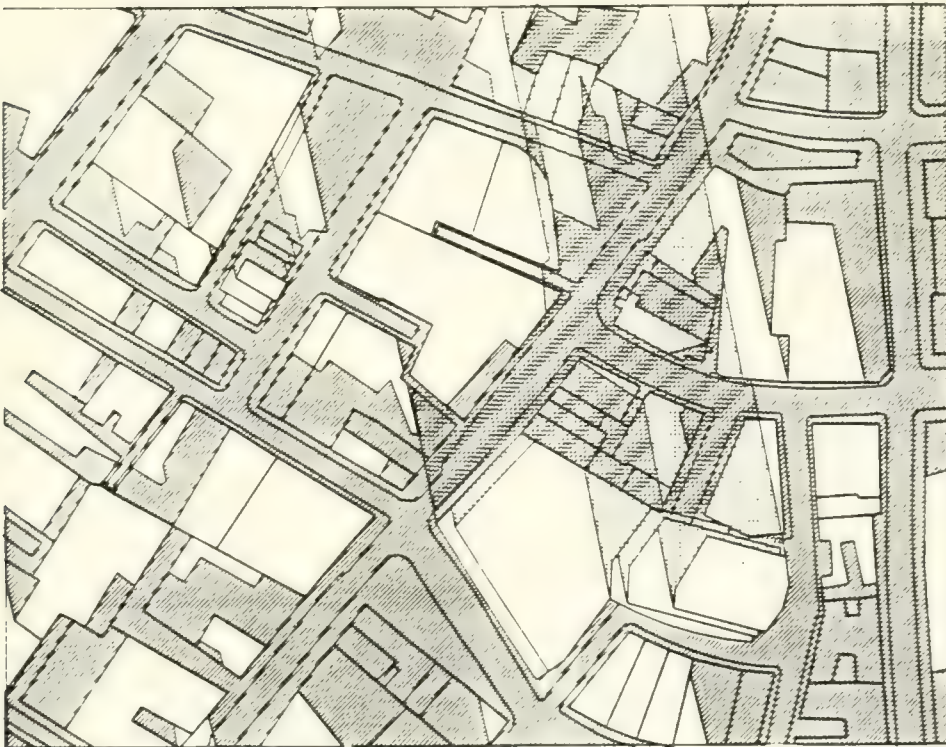
FIGURE IV 2.49



SCHEME A

DECEMBER 21

9AM



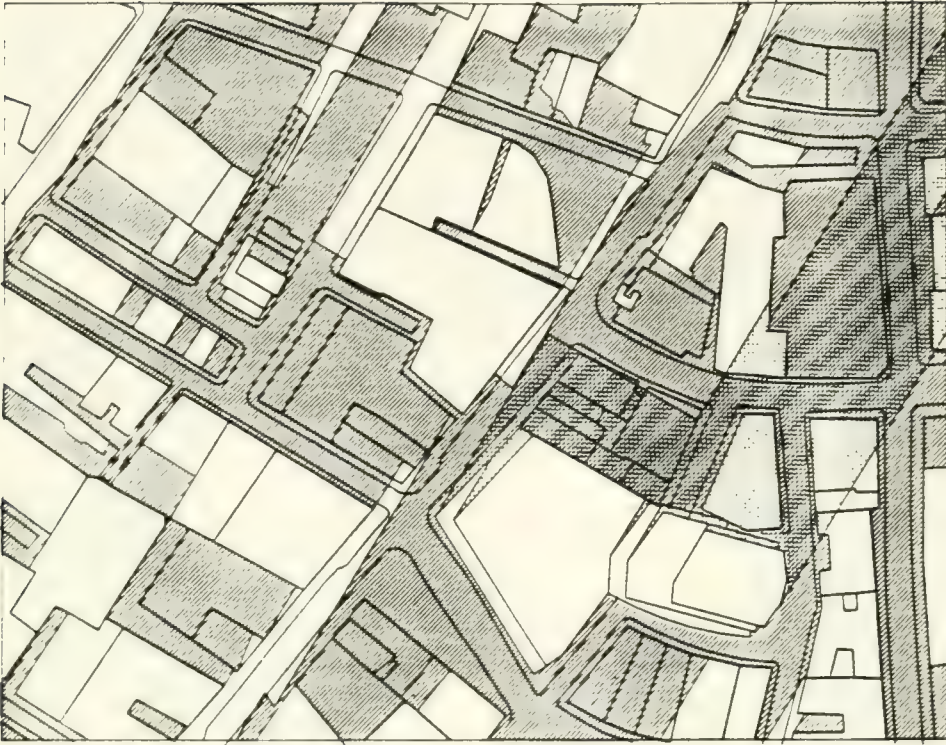
SCHEME A

DECEMBER 21

12 NOON

FIGURE IV 2.50

FIGURE IV 2.51

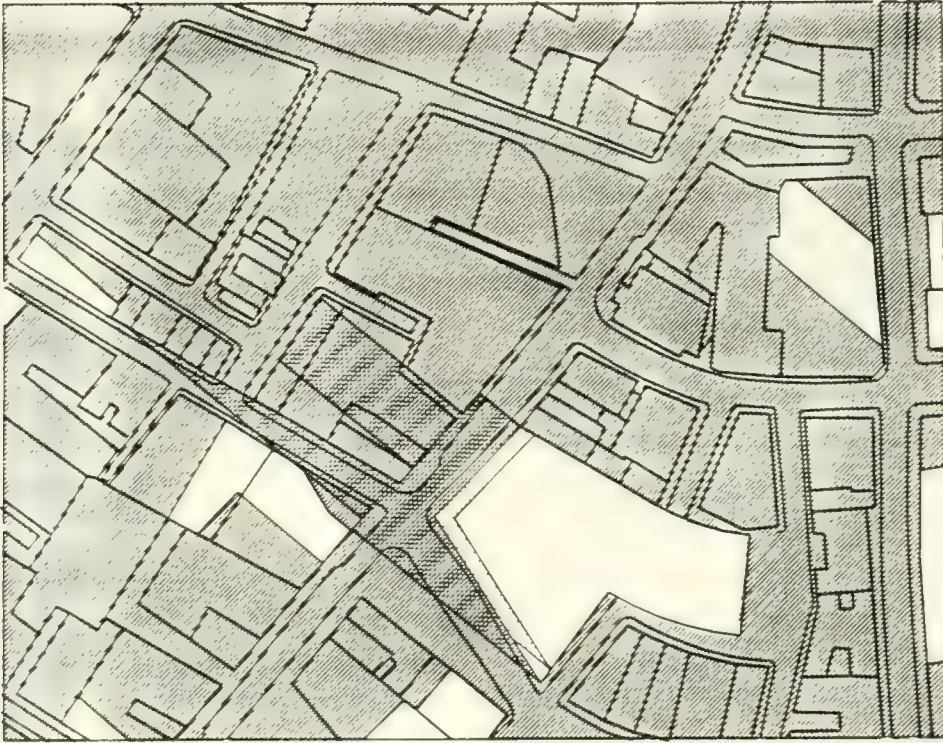


SCHEME A

DECEMBER 21

3PM

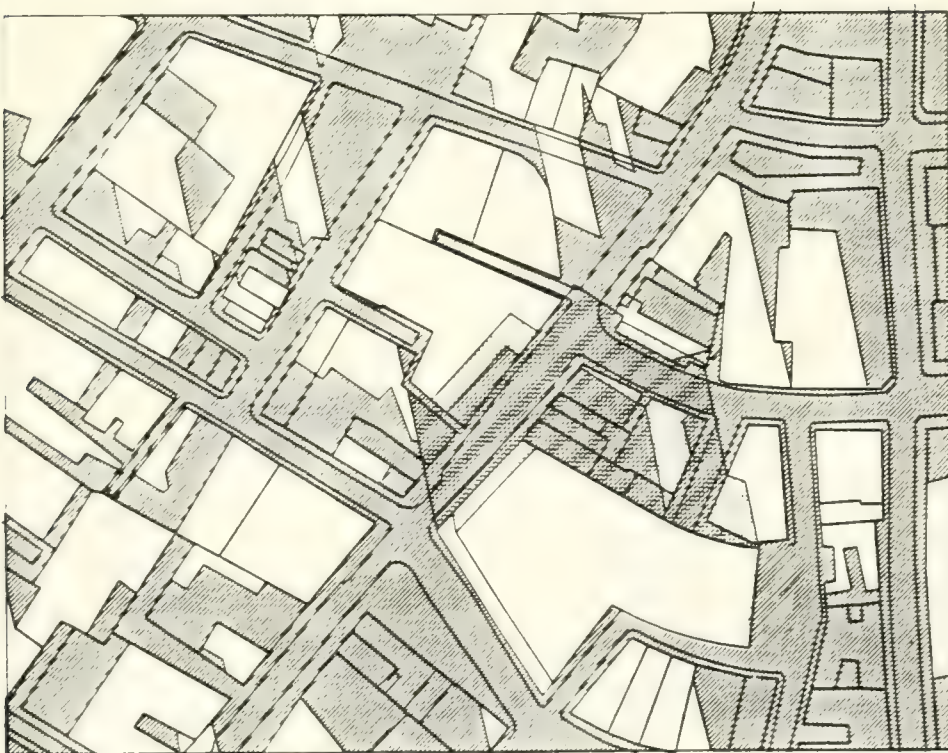
FIGURE IV 2.52



SCHEME B

DECEMBER 21

9AM



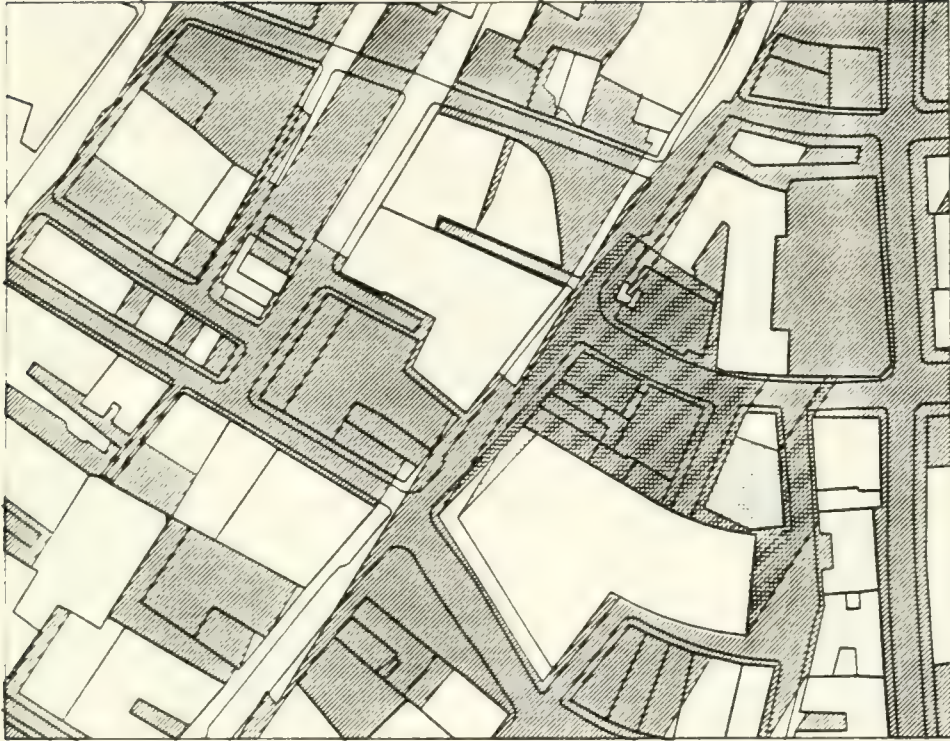
SCHEME B

DECEMBER 21

12 NOON

FIGURE IV 2.53

FIGURE IV 2.54

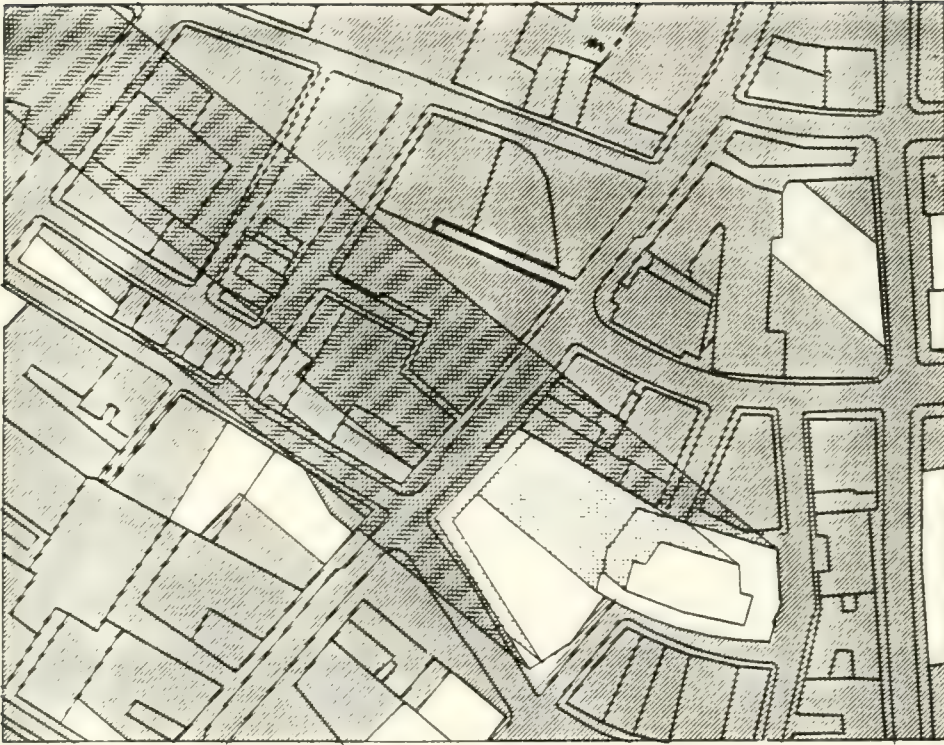


SCHEME B

DECEMBER 21

3PM

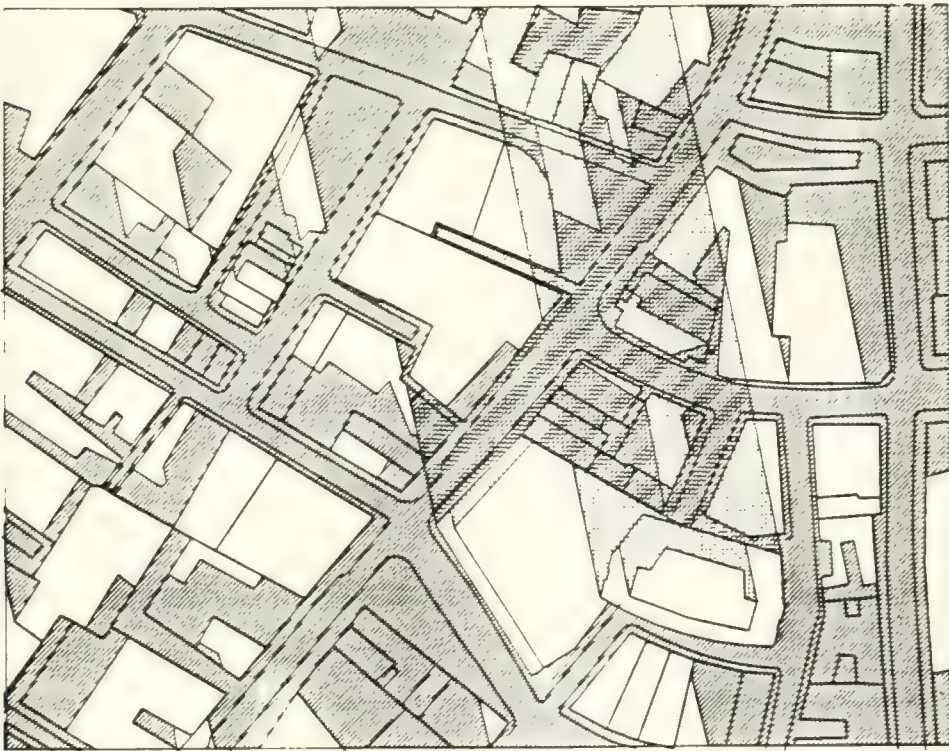
FIGURE IV 2.55



SCHEME C

DECEMBER 21

9AM



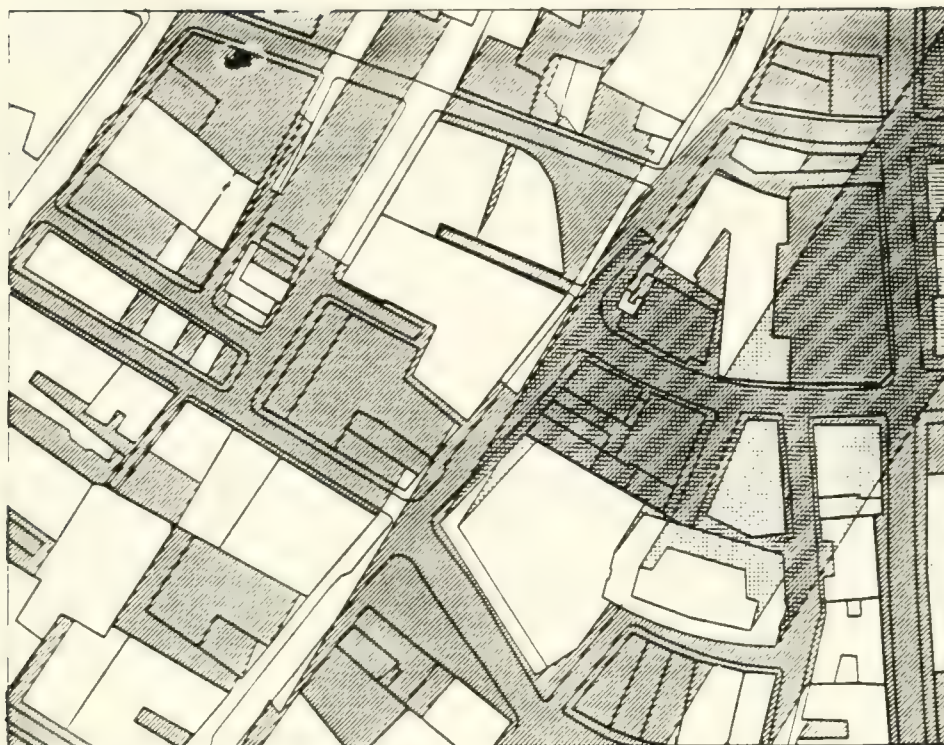
SCHEME C

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FIGURE IV 2.56

FIGURE IV 2.57



SCHEME C

DECEMBER 21

3PM

3.0 DAYLIGHT

3.1 Introduction

A daylight analysis has been prepared to estimate the extent to which Options A, B and C will affect the amount of daylight reaching the street level, given the existing and proposed massing of buildings along adjacent streets.

3.2 Method of Analysis

The analysis utilized the Boston Redevelopment Authority's Daylight Analysis (BRADA) computer software. The model provides a "fish eye" view of the building taken at ground level from the center of adjacent streets or open space. The existing buildings and proposed project footprints, setbacks, corners and other features are plotted onto a base map, using lateral and elevation angles to provide a picture of the "sky exposure" from the point chosen.

3.3 Observation Points

Daylight studies were conducted at five observation points selected in consultation with BRA staff. These locations, shown on Fig. IV.3.1, include the center of Washington Street, Arch Street, New Hawley Place and Franklin Street plus one point located in Filene's Park.

3.4 Analysis of Results

Table IV.3.1 summarizes the results of the daylight analysis. A copy of the computer printout sheets is included in Appendix F. As indicated by the table, there is not a significant difference in the amount of average obstruction between Options A, B and C, or between the options and the existing conditions. In general, the existing obstruction is relatively high, as is to be expected in an urban environment.

OBSERVATION POINTS OF DAYLIGHT STUDY

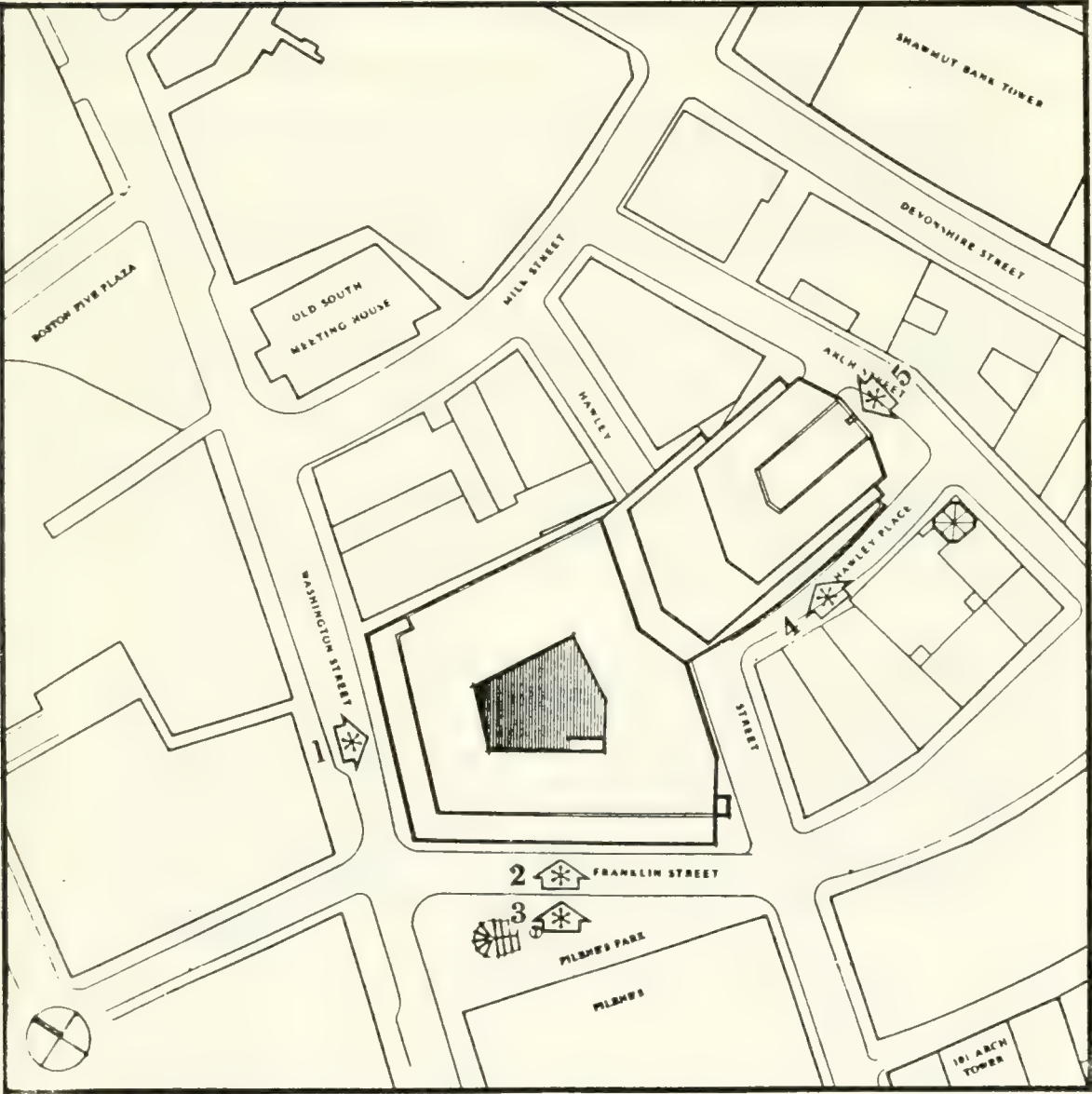


FIGURE IV 3.1

TABLE IV.3.1
PERCENTAGE OF DAYLIGHT OBSTRUCTED*

<u>View</u> <u>Location</u>	<u>% Obstruction/Options</u>			
	<u>Exist</u>	<u>A</u>	<u>B</u>	<u>C</u>
1. Washington St.	83.6	84.6	83.6	83.6
2. Franklin St.	82.0	83.0	82.3	82.8
3. Filene's Park	51.8	53.8	59.5	58.6
4. New Hawley Place	85.5	90.2	84.3	87.7
5. Arch St.	<u>81.4</u>	<u>88.4</u>	<u>85.8</u>	<u>89.3</u>
Average	76.9	80.0	79.1	80.4

*Values do not include a reduction factor due to surface reflectance effects.

The greatest increase in obstruction is on Arch Street, due to the narrowness of the street and the fact that the proposed Options A and C office buildings are located at the Arch Street end of the site. Option A allows more daylight than Option C despite the fact that it is a higher building.

At New Hawley Place, the existing obstruction is the highest of the locations studied. At this location Option C causes slightly less obstruction than Option A due to its shorter height.

Washington and Franklin Streets, the two most important pedestrian streets, are not affected significantly by any of the proposed schemes due to the fact that major setbacks are provided from these streets for both tower schemes.

Filene's Park, an important pedestrian space across Franklin Street from the project, currently has the greatest amount of daylight of any of the locations studied. Because of the setback, Option A has no effect on the Park. Option B, the as-of-right scheme, has the greatest negative effect, whereas Option C, though resulting in less obstruction than Option B, is not a favorable as Option A due to the additional "transfer" floor located above the Woolworth portion of the building.

3.5 Conclusion

The amount of added daylight obstruction for all schemes is relatively small. With regard to the most important

pedestrian zones, namely, Washington and Franklin Streets and Filene's Park, as indicated by Table IV.3.2, Option A is the best scheme, followed by Option C and Option B.

TABLE IV.3.2
PERCENTAGE OF DAYLIGHT OBSTRUCTED*
PEDESTRIAN ZONE LOCATIONS

View	% Obstruction/Options			
<u>Location</u>	<u>Exist</u>	<u>A</u>	<u>B</u>	<u>C</u>
1. Washington St.	83.6	84.6	83.6	83.6
2. Franklin St.	82.0	83.0	82.3	82.8
3. Filene's Park	<u>51.8</u>	<u>53.0</u>	<u>59.5</u>	<u>58.6</u>
Average	72.5	73.8	75.1	75.0

*Values do not include a reduction factor due to surface reflectance effects.

4.0 AIR QUALITY

4.1 Introduction

The purpose of this analysis is to evaluate the potential air quality impacts of the proposed Forty Franklin development and to identify any conditions which may cause pollutant concentrations to exceed the Massachusetts or National Ambient Air Quality Standards (NAAQS). The air quality impacts of the development are due to the additional traffic expected to be generated by the project. These vehicles will use the local roadway system to travel to and from the development.

Air quality in the project area is characterized for purposes of this study by the ambient concentration of carbon monoxide (CO). Carbon monoxide is most often selected to characterize air quality conditions for three primary reasons: (1) CO is the principal pollutant associated with local traffic impacts, (2) traffic is the only impact of the project that may affect long term air quality, and (3) pollutant emission rates are such that CO is the only pollutant for which the NAAQS could be exceeded due to traffic impacts.

Transportation activities account for by far the major portion of CO emissions. Carbon monoxide is a colorless and odorless gas, most of which is produced by the incomplete combustion of hydrocarbon fuels. In humans, CO is absorbed by the lungs where it combines with the hemoglobin in the blood, reducing its oxygen-carrying capacity. This affects the central nervous system and causes impairment of visual acuity and time judgment. Long term exposure at very high levels damages the heart and the brain.

The NAAQS for CO is 35 parts per million (ppm) for one hour or 9 ppm for eight hours, not to be exceeded more than once per year. The U.S. Environmental Protection Agency (EPA) has established these standards to protect the most sensitive groups in the human population with an additional margin of safety.

A computer modeling analysis was performed to estimate ambient CO concentrations for each alternative scenario and time period. The study represents a microscale (local area) screening process designed to ascertain whether violations of environmental standards are likely to result exclusively from the construction of Forty Franklin. It is not designed to be a complete description of the ambient air environment in the project vicinity. However, the analysis uses reasonable "worst

case' assumptions and data so that the results are conservative (tending to overstate the ambient CO concentrations).

The following sections describe the methodology and present the results of the air quality analysis.

4.2 Analysis Procedure

4.2.1 Project Alternatives

In order to ensure that CO levels do not exceed the NAAQS, the impacts of a project should be evaluated for conditions with and without the project for a future year corresponding to project completion. This analysis includes two alternatives for Forty Franklin. The first alternative is conditions in 1994 without the project (the No-Build alternative), and the second is conditions in 1994 with Option A in place (the build alternative). Option A is expected to produce the maximum impacts of the project alternatives under consideration. Existing (1989) conditions are also evaluated to illustrate air quality trends in the project area.

For each alternative scenario, the air quality analysis was performed for both the one-hour and eight-hour periods in order to provide comparisons consistent with the averaging times specified in the NAAQS.

Enclosed parking garages are equipped with mechanical ventilation systems which discharge from exhaust vents. The emissions of vehicle exhaust gases from these vents can produce localized air quality impacts. However, the Forty Franklin development will not alter the existing open configuration of the parking garage. Since no mechanical ventilation system is proposed, this air quality study does not include analysis of parking garage ventilation.

4.2.2 Analysis Locations

Freely flowing traffic rarely causes the NAAQS to be exceeded. Elevated CO concentrations are associated with roadway intersections and other locations where vehicles must travel slowly or idle in queues. The degree of traffic congestion is evaluated in terms of levels of service (LOS) grades, where LOS A is best and LOS F is worst. The Massachusetts Department of Environmental Protection (DEP) has established criteria for air quality analysis based on LOS. Air quality analysis is required

at any intersection operating at LOS D, where the project adds 10 percent to the traffic volumes, and at any intersection operating at LOS E or F. These criteria are designed to identify locations where CO concentrations may be high due to severe queueing and delays.

The traffic impact study for the proposed Forty Franklin (Part III) identifies two intersections which meet the DEP LOS criteria. These are Milk Street and Arch Street, and Arch Street and the driveway to the existing on-site parking garage. The driveway will be eliminated as part of Forty Franklin. This change is expected to have a positive impact on pollutant concentrations along Arch Street. The highest traffic volumes are projected to occur during the afternoon peak hour. This peak hour is expected to produce the highest CO concentrations and accordingly was selected for air quality analysis.

Using computer modeling techniques, CO concentrations were calculated at nine sensitive receptors near the two intersections. These receptors included offices, restaurants, and other establishments. They represent locations to which the public has access for one-hour or eight-hour time periods (corresponding to the averaging times specified in the NAAQS), or where the highest CO concentrations are expected. Table IV.4.1 lists these receptors, and they are shown in Figure IV.4.1.

4.2.3 Emissions and Dispersion Modeling

Pollutant emissions are calculated by multiplying traffic volumes for each roadway segment by the corresponding segment length, and by an emission factor which depends on the types of vehicles, the traffic speed, and other variables. Once emitted, the pollutants disperse in the atmosphere in a manner determined by the local meteorological conditions. All predictions are based on "worst case" assumptions (those which would lead to prediction of the highest CO concentrations).

Data on traffic volumes (both 1-hour and 8-hour averages), traffic controls, and vehicle queueing at intersections were provided by H.W. Moore Associates (HWM). Data on roadway geometry were provided by HWM, the City of Boston, and field surveys.

The EPA MOBILE4 computer program (User's Guide to MOBILE4, U.S. Environmental Protection Agency, Office of Mobile Sources, Report No. EPA-AA-TEB-89-01, Ann Arbor, MI. February, 1989) was used to derive vehicle emission

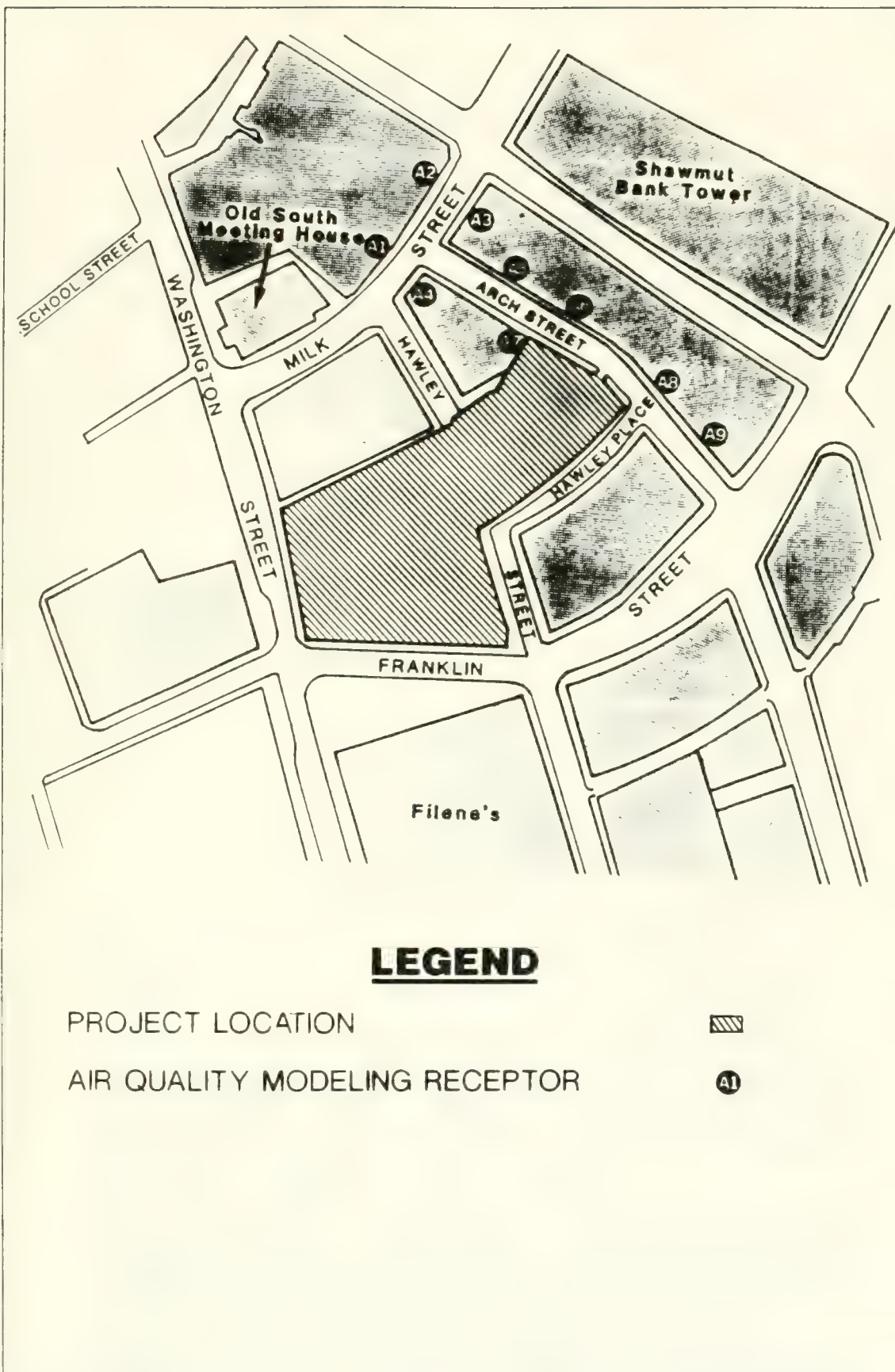


Figure IV.4.1 Air Quality Modeling Receptors

TABLE IV.4.1
SENSITIVE RECEPTORS FOR
AIR QUALITY ANALYSIS

<u>RECEPTOR</u>	<u>DESCRIPTION</u>
A1	Au Bon Pain Bakery, northwest of intersection of Milk and Arch Streets
A2	Milk Street Cafe, northeast of intersection of Milk and Arch Streets
A3	45 Milk Street office building, southeast of intersection of Milk and Arch streets
A4	25 Milk Street office building, southwest of intersection of Milk and Arch Streets
A5	Back door of commercial building on east side of Arch Street
A6	Hole in the Wall Deli, on east side of Arch Street
A7	'9' building, on west side of Arch Street
A8	50 Arch Street office building, across from garage exit
A9	Bank of New England office, on east side of Arch Street.

Receptors are indicated on Figure IV.4.1

rates. The principal inputs used to calculate the emission factors are discussed below. The national averages used for some inputs are default values built into the MOBILE4 model. Table IV.4.2 lists the principal input values used for modeling. Emissions due to queueing of vehicles at the intersections were accounted for using the EPA Region I method.

The Federal Highway Administration (FHWA) CALINE3 program (CALINE3 - A Versatile Dispersion Model for Predicting Air Pollutant Levels Near Highways and Arterial Streets, Federal Highway Administration, Report No. FHWA/CA/TL-79/23, Washington, DC, September 1979) was used to predict CO concentrations. This model is approved by EPA and the U.S. Department of Transportation

TABLE IV.4.2
MODELING INPUT VALUES FOR
AIR QUALITY ANALYSIS

Vehicle Speeds:	Field observations.
Vehicle Age and Type Mix:	National average.
Ambient Temperature:	30° F.
Vehicle Operating Phases:	One hour: 50.0%/10.0%/50.0%; Eight hours: 20.6%/27.3%/20.6%.
Inspection and Maintenance:	Massachusetts program. Data provided by DEP and EPA.
Wind Speed:	1.0 m/sec.
Wind Direction:	Varied at each receptor to produce the maximum CO concentration.
Atmospheric Stability:	Pasquill-Gifford Class D.
Atmospheric Mixing Height:	100 m.
Aerodynamic Surface Roughness	321 cm.

for this type of application. CALINE3 is a Gaussian line source dispersion model which takes into account emission rates, traffic volumes, roadway and site geometry, and meteorological conditions. The dispersion modeling was conducted using the meteorological assumptions given in Table IV.4.2.

4.2.4 Background Concentrations

The total ambient CO concentration at each receptor is the sum of the modeled concentrations plus a background value. The background concentration is intended to account for all CO sources not due to the traffic in the local area. There are no air quality monitoring stations in the project area from which to estimate background values. DEP advised that appropriate values for existing conditions are 5.0 ppm for one hour and 3.0 ppm for eight hours.

Background concentrations should be adjusted to account

for changes in average emission rates over time. These changes occur because the Federal Motor Vehicle Control Program (FMVCP) requires increasingly effective emission controls with each succeeding model year. As newer vehicles replace older ones on the road, the average CO emission rate decreases. The background CO concentrations for 1989 were adjusted to 1994 conditions according to the ratio of emission factors for those years.

The background CO concentrations were also adjusted according to the rate of traffic volume growth in the region over time. The traffic study concluded that volumes in the study area may be expected to increase by 0.5 percent per year from 1989 to 1994, and the background concentrations were so adjusted. Part III.1 contains further discussion of traffic volumes and trends.

Finally, ten percent of the background concentration was assumed to be due to stationary sources and was held constant over time. Table IV.4.3 presents the CO background values.

TABLE IV.4.3
BACKGROUND CARBON MONOXIDE CONCENTRATIONS

<u>Averaging Time</u>	<u>1989 Existing Per DEP (ppm)</u>	<u>1994 No-Build & Build Adjusted (ppm)</u>
One Hour	5.0	3.9
Eight Hours	3.0	2.3

4.3 Results

Table IV.4.4 presents the results of the air quality analysis. All CO concentrations are below the NAAQS for all alternatives.

With existing conditions, peak hour CO concentrations are low for a downtown urban location. The maximum predicted CO concentrations with existing conditions are less than one-third of the NAAQS. Peak hour CO concentrations decrease from 1989 existing conditions to the 1994 No-Build alternative. Although traffic volumes are predicted to increase slightly, the average CO emission rates decrease as a result of the FMVCP, as discussed in Section 4.2.4.

TABLE IV.4.4
PREDICTED CARBON MONOXIDE CONCENTRATIONS

<u>Receptor</u> <u>Number</u>	<u>1989</u> <u>Existing</u>	<u>1994</u> <u>No-Build</u>	<u>1994</u> <u>Build</u>
ONE-HOUR CONCENTRATIONS*			
A1	8.5	6.4	6.1
A2	8.9	6.7	6.1
A3	8.0	6.1	5.4
A4	8.3	6.3	5.6
A5	10.5	7.8	6.4
A6	10.0	7.9	6.7
A7	9.5	6.9	6.4
A8	9.2	7.3	6.0
A9	8.8	6.8	5.9
NAAQS	35.0	35.0	35.0
EIGHT-HOUR CONCENTRATIONS**			
A1	4.1	3.1	2.5
A2	4.2	3.2	2.5
A3	4.0	3.0	2.6
A4	4.2	3.1	2.6
A5	4.6	3.4	2.7
A6	4.4	3.3	2.4
A7	4.2	3.2	2.5
A8	4.4	3.3	2.3
A9	4.3	3.3	2.3
NAAQS	9.0	9.0	9.0

* Concentrations are in parts per million (ppm), and include a one-hour background level of 5.0 ppm for 1989 and 3.9 ppm for 1994.

** Concentrations are in parts per million (ppm), and include an eight-hour background level of 3.0 ppm for 1989 and 2.3 ppm for 1994.

With the build alternative in 1994, predicted one-hour CO concentrations decrease slightly relative to the No-Build alternative. Although the Forty Franklin development will generate slightly more traffic than the No-Build alternative, the traffic from the site will be rerouted due to the relocation of the entrance and exit from the parking garage. The result is a net decrease in traffic congestion and queueing in the vicinity of the sensitive receptors. All predicted CO concentrations for the peak

hour remain well below the NAAQS.

The predicted eight-hour CO concentrations follow the same trends as the one-hour concentrations. Predicted eight-hour CO levels decrease from 1989 existing conditions to the 1994 No-Build alternative, for the same reasons as in the one-hour case. With the build alternative, eight-hour CO concentrations in 1994 decrease slightly in response to traffic rerouting, as in the one-hour case. All predicted eight-hour CO concentrations are below the NAAQS of 9.0 ppm.

4.4 Conclusions

This analysis has evaluated the potential air quality impacts of the proposed Forty Franklin development in Boston, MA. These impacts are due to the traffic which the project will generate. The impacts were evaluated in terms of CO concentrations in the local area, compared to the NAAQS. The analysis was conducted in accordance with DEP and EPA guidelines.

The study considered existing (1989) conditions plus the No-Build and Build alternatives in 1994. Impacts were evaluated in the vicinity of the intersections of Milk Street and Arch Street, and Arch Street and the driveway to the existing on-site parking garage. Carbon monoxide concentrations were predicted at nine sensitive receptor locations which consisted of offices, restaurants, and other establishments.

The EPA MOBILE4 model was used to calculate emission rates from vehicles, and the FHWA CALINE3 dispersion model was used to predict CO concentrations at the receptor locations. The input data consisted of the traffic impact study plus information provided by the relevant government agencies and field observations. Assumptions and data were selected to represent worst-case conditions so that CO concentrations would tend to be overestimated.

The air quality analysis performed for the proposed Forty Franklin development indicates that the project generally will result in minor changes in CO levels relative to the No-Build alternative. These impacts reflect primarily the rerouting of traffic due to the relocation of the entrance and exit from the parking garage. All predicted CO concentrations are below the NAAQS. Because no estimated CO levels exceed the NAAQS, no mitigation of air quality impacts is required.

5.0 NOISE

5.1 Noise Fundamentals

Noise may be defined as an unwanted or undesirable sound in the environment. The purpose of this analysis is to define the existing noise levels in the outdoor pedestrian environment at the Forty Franklin site and to identify any locations where the noise impacts of the development may be excessive.

Many sources can contribute to the noise level in an urban area. Roadway traffic contributes significantly to daytime noise levels. In the Downtown Crossing retail area, delivery truck traffic can add to morning noise levels. Because the area includes a pedestrian mall, both noise from and impacts on pedestrians outdoors must be considered. Mechanical noise from buildings can cause localized noise impacts. Airplane flyovers can cause very high noise levels. Industrial activity can cause high noise levels in the surrounding neighborhoods, but is not present to a significant extent in the Forty Franklin area.

Roadways and pedestrian activity are usually the major street-level noise sources in the urban office/shopping environment. Thus, the description of noise at the Forty Franklin site must address these noise sources specifically. Noise conditions with the development project are projected by measuring existing ambient noise, estimating the noise contributions of the project, and calculating the total noise level from both existing and project-related noise.

5.2 Description of Noise

Noise is a complex phenomenon. Each type of vehicle (and each individual vehicle) exhibits several different sources of noise. The dominant sources are exhaust noise, tire noise, engine noise and, sometimes, brake noise. Each of these noises has a characteristic frequency and level. When all the sources on all vehicles on a section of road are added together, the result is highway noise. Similarly, mechanical noise from buildings consists of sound from motors, fans, pumps, vents, and related equipment. Pedestrian street noise includes walking, talking, and similar human activity. Construction activity, which is widespread in downtown Boston, contributes noise from engines, air compressors, jackhammers, and other equipment. In order to represent this noise, a unit of measure for noise

level, a method of describing the frequency content of the noise, and a method of describing the time variations in noise level are required.

Decibels (dB) are the customary units for measuring noise levels. The decibel is a logarithmic unit that relates a sound pressure level (P) to a standard reference sound pressure level (P_0), as follows:

$$dB = 20 \log (P/P_0)$$

The reference level (P_0) is a sound pressure of 2×10^{-5} Newtons per square meter, the weakest sound audible to most people. A logarithmic unit is used to measure sound because of the enormous range of intensity to which the human ear is sensitive. The minimum audible sound is zero dB. On this logarithmic scale, a doubling of sound power corresponds to a three dB increase in sound level. Three dB is approximately the smallest difference in sound level reliably detected by human hearing. Five dB is perceived as a significant change, and ten dB is perceived as a doubling of sound level.

Various weighting schemes have been devised to emphasize certain frequencies of sound for particular purposes. The A-weighted scale stresses the high frequency content of a sound, and is used when measuring mixed frequency sound such as that found in the street environment, since people are more sensitive to high frequency noise than to lower frequency noise. The A-weighted scale, designated dBA, has been found to correlate very well with people's subjective judgment of noise level.

Time variations are dealt with by using statistical descriptors of noise level. These are:

L_n = That sound level in dBA exceeded n percent of the time. Typical values of n are 10, 50, and 90 percent.

L_{eq} = That constant sound level which contains the same amount of acoustic energy as the actual varying sound level when averaged over a specified time period.

L_{10} is an indicator of both the magnitude and frequency of occurrence of the loudest noise events while L_{90} is representative of both the magnitude and frequency of occurrence of the quietest periods. L_{50} may be referred to as the average sound level. L_{eq} is usually slightly higher than L_{50} . L_{eq} is useful in characterizing the average impacts of sound levels that

vary widely over time, and is the noise descriptor used in this analysis to assess noise impacts.

5.3 Noise Standards

The Boston Air Pollution Control Commission regulates noise in the City of Boston (Regulation 2.5, Regulations for the Control of Noise in the City of Boston). These regulations require that project-generated building mechanical noise not exceed 65 dBA within the business zoning district. They do not apply to project-generated traffic noise. For roadway noise, standards have been promulgated by the Federal Highway Administration as Noise Abatement Criteria (NAC) (Federal Highway Administration, Federal-Aid Highway Program Manual, Section 7.7.3, Table 1. Washington, DC. August 9, 1982). The NAC vary for different categories of land use. The lands surrounding the Forty Franklin site are included in Category C (commercially developed lands), for which the NAC is 72 dBA. While the NAC are strictly applicable only to new highway projects, they provide an unofficial guideline for acceptability in other situations where roadways are the major noise source.

5.4 Existing Noise Levels

5.4.1 Noise Monitoring Methodology

In order to assess the existing noise environment, a noise monitoring program was undertaken in October, 1989. Monitoring was carried out at a total of five locations. These locations are listed in Table IV.5.1 and shown on Figure IV.5.1. These locations were chosen to represent the outdoor pedestrian noise environment in the vicinity of the Forty Franklin site, including traffic, shopping and other pedestrian activity, and building noise.

Monitoring was performed on weekdays during both peak traffic periods and in the evening. The morning peak period includes potential noise impacts due to delivery trucks. The afternoon peak period includes the highest overall traffic volumes as well as high pedestrian volumes. Evening and nighttime periods are the times of lowest overall activity, when ambient noise levels are expected to be lowest, so that any project-generated noise would tend to be most noticeable.

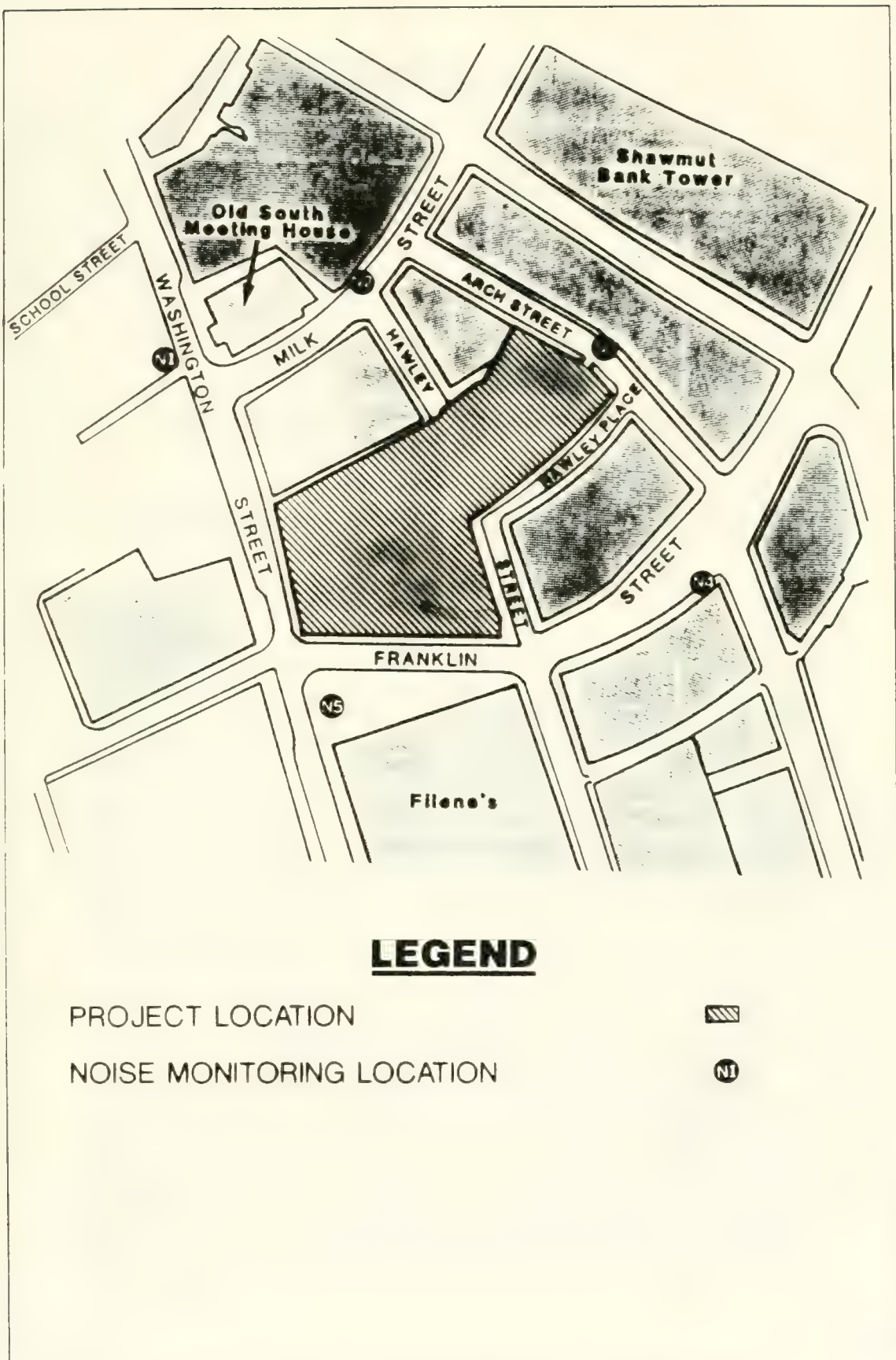


Figure IV.5.1 Ambient Noise Monitoring Locations

TABLE IV.5.1
NOISE MONITORING LOCATIONS

<u>RECEPTOR</u>	<u>DESCRIPTION</u>	<u>RATIONALE</u>
N1	Boston Five Park	Increase in traffic predicted, pedestrian impact area.
N2	10 Milk Street	Increase in traffic predicted.
N3	Garage entrance/exit	Decrease in traffic predicted.
N4	Baybank, Franklin and Arch Streets	Characterize high traffic area, pedestrian impact area.
N5	Filene's Park	Characterize pedestrian mall, pedestrian impact area.

The Downtown Crossing retail area experiences very high pedestrian volumes during the midday period. A noise survey conducted in the same shopping district for the Boston Crossing development compared midday noise levels with morning and afternoon peak traffic period noise levels. Midday noise levels were very similar (within +3 dBA) to afternoon peak period levels and somewhat lower (within -7, +1 dBA) than morning peak period levels. Based on these data, noise levels due to peak pedestrian activity were considered to be comparable to peak traffic period noise levels in the project area, and no additional midday noise monitoring was conducted.

The noise measurement instrumentation consisted of a GenRad model 1945 Community Noise Analyzer with model 1962-9610 microphone and model 1560-P42 preamplifier. This apparatus operates at a sampling rate of approximately 4.5 samples per second and calculates L_n and Leq automatically. For this monitoring program, 30 minute integration periods were used. Additional measurements were made with a GenRad model 1565B Precision Sound Level Meter. At each location the meter was read at 10 second intervals until 100 samples were recorded. Both instruments were calibrated before and after each run with a Quest CA-12 calibrator.

5.4.2 Results

Table IV.5.2 presents the results of the noise monitoring program. The data from the noise survey shows noise levels to be fairly constant around the perimeter of the site. Daytime noise levels are fairly constant with a slightly higher ambient level in the morning due to an increase in delivery truck volumes, except at locations N3 and N4 where morning construction raised the ambient noise level substantially. Nighttime levels are generally 6 dBA lower than daytime levels but are still dominated by traffic and "people" noises.

Average noise levels (L_{eq}) range from 67 to 70 dBA (excluding sites affected by construction noise) during the day and 61 to 63 dBA at night. The background noise levels (L_{90}) range from 62 to 66 dBA (excluding sites affected by construction noise) during the day and 53 to 59 dBA at night.

These data are typical of street level traffic and pedestrian noise levels in an urban downtown area. Trucks, buses and cars dominate the noise level with additional contributions from pedestrians, aircraft, car horns, construction and street musicians. At night, mechanical noise from fans and air conditioners was audible, but ambient noise levels were dominated by traffic and human noises.

Locations N3 and N4 are located near the construction site at the corner of Arch Street and Franklin Street. Construction was in progress during the morning measurements only. Other construction sites and street work were in progress a block or more from monitoring sites, but this is considered normal background noise in this area and did not significantly affect the measured noise levels.

The mechanical equipment currently on the Forty Franklin site is located in the interior of the garage. Noise measurements were taken approximately 30 feet from the equipment and the existing noise level (L_{eq}) is 67 dBA. However, the equipment is located in the center of the parking garage and the garage structure provides sufficient shielding that the site-generated mechanical noise is not audible outside of the parking garage, even at night when street noise levels are lowest.

TABLE IV.5.2
EXISTING NOISE LEVELS (dBA)

<u>Receptor</u>	<u>L10</u>	<u>L50</u>	<u>L90</u>	<u>Leq</u>	<u>Notes</u>
AM PEAK PERIOD: 7:00 - 9:00 AM					
N1	73	65	62	68	Street sweeper
N2	72	68	66	70	-
N3	84	76	68	79	Construction, truck near meter
N4	81	73	70	77	Construction
N5	72	65	62	68	-
PM PEAK PERIOD: 4:00 - 6:00 PM					
N1	65	64	62	64	-
N2	72	65	63	68	Police siren
N3	69	65	62	67	Car horn
N4	71	67	64	69	Construction
N5	70	66	65	68	Garbage truck
NIGHTTIME OFF-PEAK PERIOD: 9:30 PM to 1:00 AM					
N1	65	61	59	63	-
N2	65	61	59	63	Shouting, radios
N3	65	60	58	62	Fan (not from site)
N4	64	59	56	62	Car horn
N5	65	58	53	61	Alarm
MECHANICAL EQUIPMENT INSIDE GARAGE					
30' from equipment	67	67	66	67	Intermittent squeaking

5.5 Noise Impacts of the Project

5.5.1 Vehicular Noise

Potential long term noise level increases associated with traffic from the proposed project were calculated based on the increase in project generated traffic over existing and No-Build levels. Traffic data were provided by H.W. Moore Associates, Inc. Noise levels in the project area are influenced by a variety of sources, but traffic is generally the most significant contributor to noise levels except during the AM peak at locations N3 and N4, where construction was the most significant contributor to the measured noise level. Therefore, future noise levels at sites N3 and N4 in the absence of construction could not be calculated. The expected future noise levels are tabulated in Table IV.5.3.

TABLE IV.5.3
PREDICTED NOISE LEVELS

Peak	Receptor	<u>Leq (dBA)</u>		
		1989 <u>Existing</u>	1994 <u>No-Build</u>	1994 <u>Build</u>
AM Peak	N1	68	68	68
	N2	70	70	71
	N3	79	+0 *	+0 *
	N4	77	+0 *	+2 *
	N5	68	68	68
PM Peak	N1	64	64	66
	N2	68	68	72
	N3	67	67	65
	N4	69	69	69
	N5	68	68	68

Nighttime Off-Peak Period: No change in existing noise levels is predicted.

* Future noise levels cannot be accurately predicted because of current construction. The predicted impact of the site in terms of additional dBA expected is shown.

Traffic noise levels are modeled by calculating the noise increases associated with the increased traffic volumes from the existing conditions to the 1994 No-Build and Build conditions. The conservative assumption that all noise in the project area is due to traffic was made to assure that noise impacts would not be underestimated.

Future night time noise levels were not calculated because no increased traffic from the project is expected at these hours.

The NAC for a commercial area such as Downtown Crossing is 72 dBA. No exceedances of this criterion are predicted. The largest predicted impact on noise levels is 4 dBA at N2 (10 Milk Street) during the PM peak hour. Three dBA is considered the minimum audible increase, and an increase of 5 dBA is generally considered a significant impact. Thus, although the new exit on Milk Street is predicted to have a noticeable impact on noise levels, it will not be a significant impact, in an already noisy environment. This impact is not due to new noise sources, but reflects the rerouting of traffic leaving the garage. At locations N1 and N4 the traffic increase is not predicted to be enough to create a noticeable (greater than 3 dBA) increase in ambient noise levels.

Location N3, the current garage exit, shows a predicted decrease in ambient noise levels in the Build alternative. This is because with the Build alternative the garage exit is moved from its current location on Arch Street to Hawley Street near Milk Street. However this decrease is below the 3 dBA limit at which changes in noise levels are considered audible.

Location N5, Filene's Plaza, was chosen to characterize the pedestrian mall. The project is not expected to affect traffic in this area and thus is not predicted to have a noise impact at this location.

5.5.2 Building Mechanical Noise

The existing building has HVAC systems located in the center of the parking garage. There is currently no noise impact from this equipment along the perimeter of the building. The proposed project calls for the HVAC systems to be located on the roof of the new building. The height of the building and the shielding effect of the structure itself will provide for significant attenuation of noise emissions before they reach street level.

Mitigation of building mechanical noise should be provided through specification of noise silenced equipment, location of exterior equipment and vents away from outdoor inhabited areas, and proper use of architectural noise control techniques. If these measures are implemented, no street level impact is

expected from the HVAC systems of the project. With these conditions, the site is anticipated to comply with the City of Boston noise limit of 65 dBA. No further mitigation will then be required.

5.6 Conclusions

This analysis has evaluated the potential noise impacts of the proposed Forty Franklin development in Boston, MA. These impacts are due to the traffic which the project will generate, the rerouting of traffic due to the proposed change of the parking garage entrance/exit location, and building mechanical noise. Impacts were evaluated in terms of average ambient noise levels (L_{eq}).

Noise was monitored in the project area to determine the existing ambient noise levels. Traffic data were used to determine the increase in traffic noise from the existing conditions, in the 1994 No-Build and Build alternatives. The resulting increase in ambient noise levels was calculated.

The noise level analysis performed for the proposed Forty Franklin development indicates that the project will not result in any significant changes to the ambient noise levels. The estimated ambient noise levels will not exceed the NAC or the City of Boston noise ordinances for a commercially developed area.

6.0 GEOTECHNICAL ANALYSIS

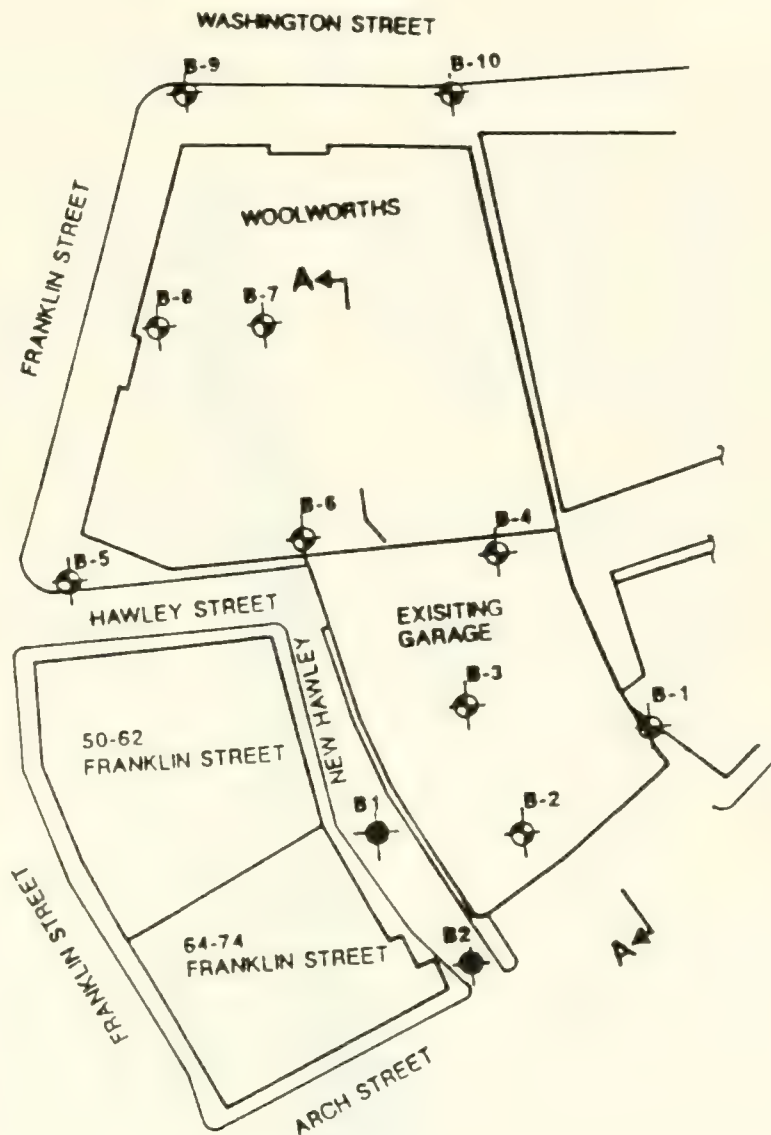
6.1 General Subsurface Conditions

Subsurface conditions in the site area were evaluated from twelve previous explorations. Ten of the borings were made several years ago in connection with the existing building; two other borings were recently drilled in New Hawley Place under the direction of Haley & Aldrich, Inc. for the adjacent 64-74 Franklin Street project. The approximate locations of these explorations are indicated in Figure IV.6.1, Subsurface Exploration Location Plan. Copies of these logs are included in Appendix G. No additional borings have been made as yet for this project.

The subsurface profile is shown in Figure IV.6.2 in order to indicate, in a very general way, the subsurface conditions in the area. The test borings indicate that the site is typically covered by approximately 10 to 15 feet of miscellaneous fill. Underlying the fill is a marine deposit that varies in thickness from approximately 5 to 30 feet within the site limits. This marine strata is typically thicker on the east side of the site and tapers out in the westerly direction as shown. This unit generally consists of varying amounts of stiff clay and stratified sand or silt.

Underlying the marine unit is a glacial till deposit that typically consists of a dense, well-bonded unit of gravel, sand, silt and clay with cobbles and boulders. Bedrock, locally referred to as Cambridge Argillite, was encountered from approximately 57 to 60 feet below the ground surface in three borings located on the eastern side of the site. It appears to be very highly weathered, as is typical in the local area.

The borings indicate the groundwater levels in the area varied from approximately 15 to 38 feet below the ground surface. It is likely that the groundwater level will be encountered at elevation 5 to 8. A "design" groundwater level should be determined after an exploration program is completed, however, for preliminary purposes a design groundwater level at elevation 10 (Boston City Base, BCB) can be assumed.



LEGEND



B-1 APPROXIMATE LOCATION AND DESIGNATION OF BORING RECORDED ON SHEET L 1 OF DRAWINGS PREPARED BY SAMUAL GLASER ASSOCIATES ARCHITECTS. FOR THE FRANKLIN WASHINGTON DEVELOPMENT



B-1 APPROXIMATE LOCATION AND DESIGNATION OF BORING OBTAINED FROM HALEY & ALDRICH, INC. FILE No. 6437

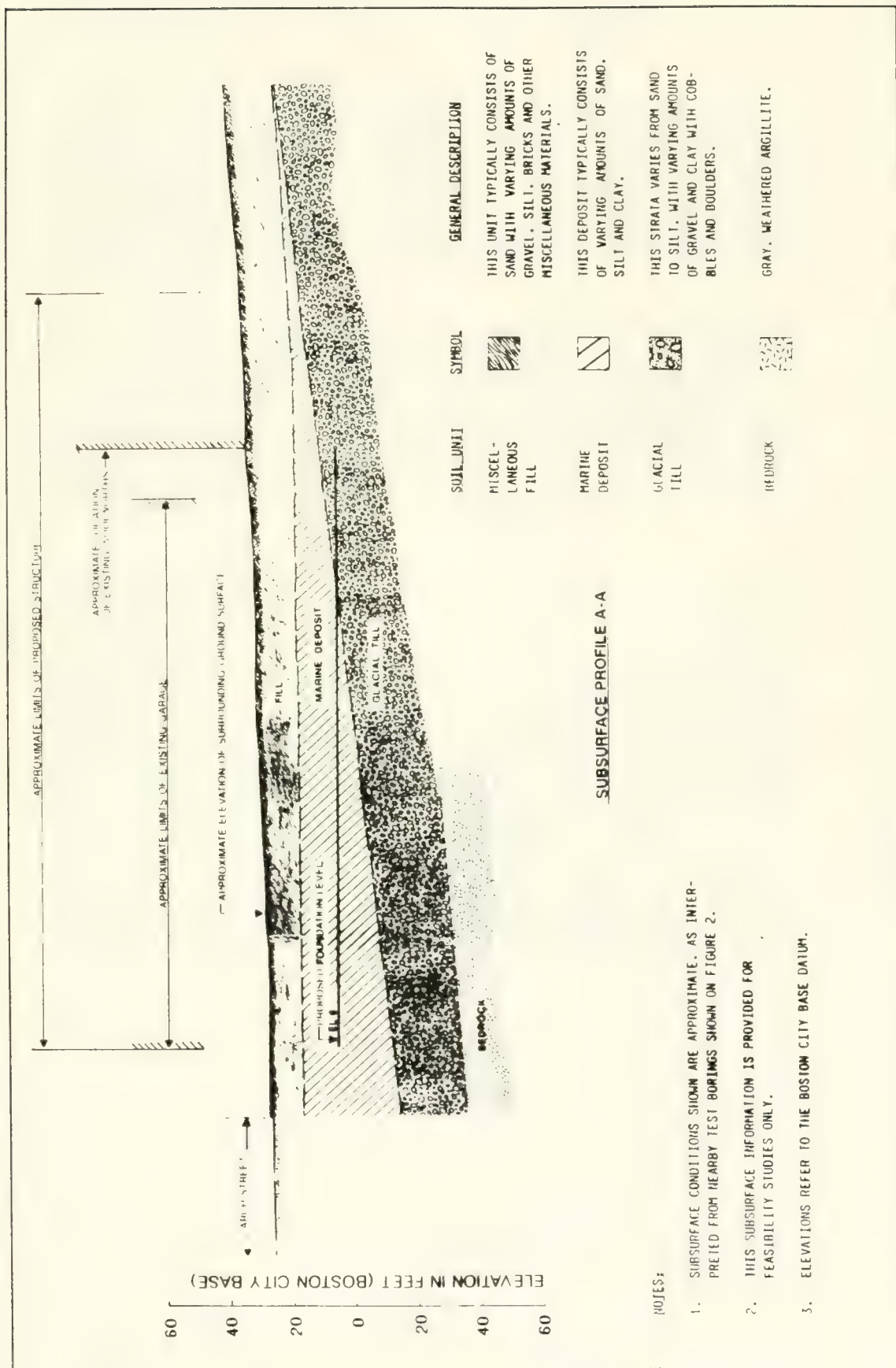


LOCATION AND ORIENTATION OF SUBSURFACE PROFILE SHOWN IN FIGURE 3

NOTES

1. BASE PLAN FOR THIS FIGURE WAS A PLAN FORWARDED BY CARRUTHERS & WALLACE LIMITED TO HALEY & ALDRICH, INC. ON APRIL 6, 1988
2. LOCATIONS OF SUBSURFACE EXPLORATIONS AND EXISTING SITE FEATURES ARE APPROXIMATE

Figure IV.6.1 Subsurface Exploration Plan



7.0 SOLID WASTE AND HAZARDOUS MATERIALS

7.1 Solid Waste

7.1.1 Domestic/Commercial Refuse

Once completed, the project will result in the generation of refuse by the proposed office use. It is estimated that full development of the project would generate approximately 25,401 cubic yards per year. This calculation is based upon a rate of 5 lbs. for every 100 square feet of retail space, and one (1) lb/100 s.f. of office space.

The property manager will be responsible for removing solid waste, and will hire a private contractor to carry out the collection and disposal of such material. All contractors will be licensed by the city and the Massachusetts Department of Environmental Protection. As with construction debris, solid waste from domestic or commercial refuse will be disposed of in approved facilities.

7.2 Hazardous Materials

7.2.1. Site Evaluation

Research of the site conducted to date, including an on-site field investigation, have not identified the presence of oil or hazardous materials in natural soil. The research included a review of the files of the Boston Fire Department, as well as the Sanborn Maps for the area. No records for storage, spills, or disposal of oil or hazardous materials were found.

A detailed 21E report will be attached to the Final P/EIR as an appendix. The existing urban fill materials will require evaluation during the detailed 21E study.

8.0 CONSTRUCTION IMPACTS

8.1 Schedule

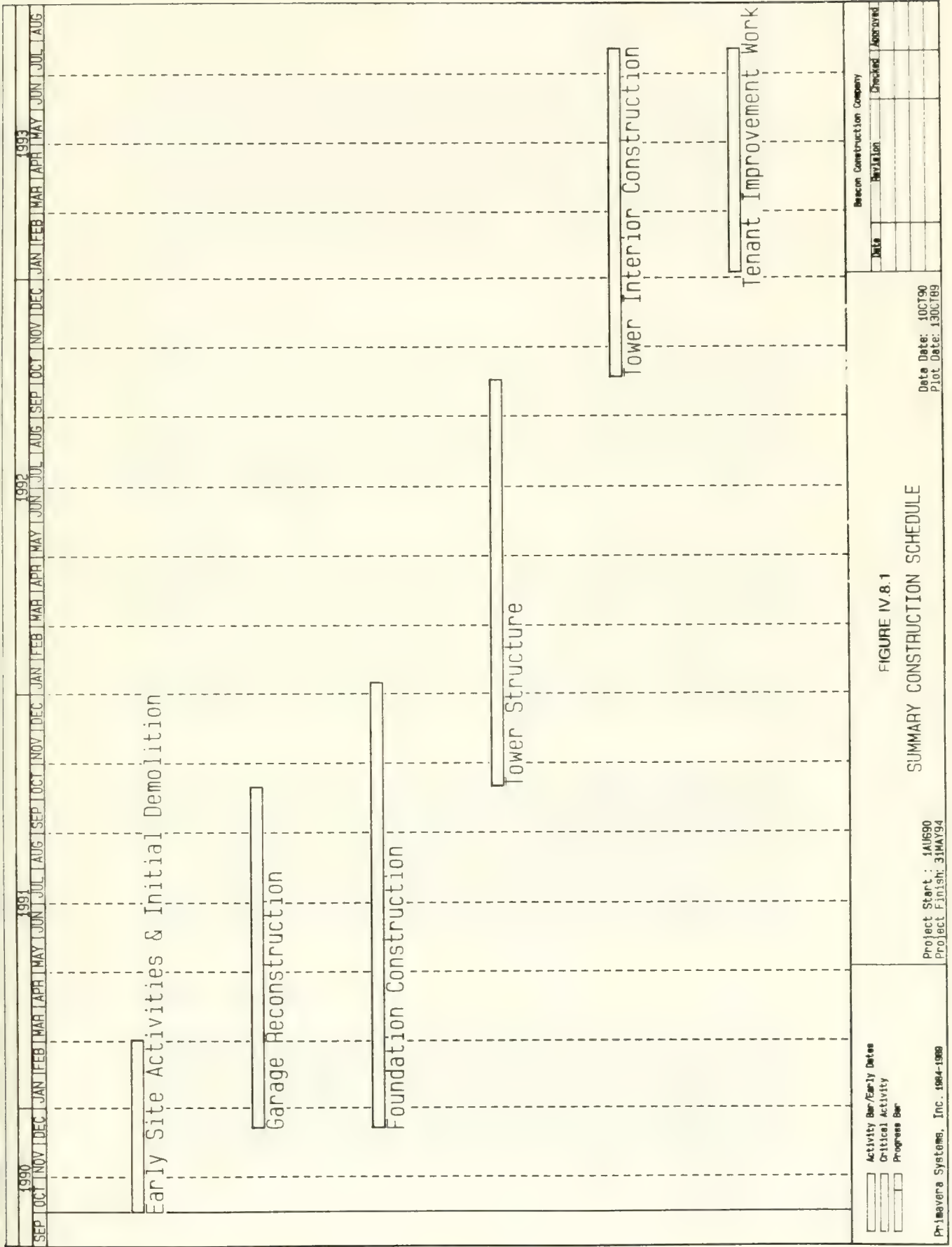
The construction period for the proposed Forty Franklin project is expected to last approximately 3 years, from 1990 to 1993. Typical construction hours for the project will be from 7:00 AM to 11:00 PM, Monday through Friday, and occasionally on Saturdays. Figure IV.8.1 represents the anticipated construction schedule.

8.2 Construction Traffic

Each stage of construction will have minor traffic impacts on the downtown roadway network. These impacts include construction worker traffic, truck traffic, and partial roadway closures. Truck traffic to and from the site consists of material deliveries and construction debris removal from the site. The construction worker traffic and truck traffic impacts are outlined below. The impacts will be minimal due to the majority of this traffic occurring during off-peak hours.

8.2.1 Construction Employee Trip Generation and Parking

The number of construction workers will vary, but is estimated not to exceed 200 to 400 workers at one time. Trip generation for construction activities is a direct function of the number of construction workers. Due to the location of the site and its accessibility to public transportation (MBTA Red, Green, and Orange lines), it is assumed that approximately 50% of all workers will utilize transit services. (This compares with approximately 60% - 70% of all work trips into the downtown area utilizing transit.) Approximately 100 to 200 persons will be arriving by automobile. Assuming an auto occupancy of 1.6 persons per auto (based on the shortage of parking, current costs of parking, and construction worker carpooling), the number of new trips generated by the construction workers will range between 60 and 126 trips. Alternately, if the mode splits (30% auto, 65% transit, 5% walk) and vehicle occupancy rates (1.6 persons per vehicle) for other work-related trips into downtown Boston are used the number of new trips generated by construction workers will be between 33 and 67. Construction workers generally travel before the peak hours (work day - 7:00 AM to 3:30 PM, and 3:30 PM to 11:00 PM) and will not add to peak hour traffic volumes. Therefore, no significant impacts on peak hour traffic operations are anticipated from construction worker



☐ Activity Bar/Early Dates
☐ Critical Activity
☐ Progress Bar

FIGURE IV.8.1
 SUMMARY CONSTRUCTION SCHEDULE

Beacon Construction Company			
Date	Revision	Checked	Approved

Project Start: 1AUG90
 Project Finish: 31MAY94

Date Date: 10CT90
 Plot Date: 130CT89

vehicle traffic.

Parking for construction workers will be addressed in the Traffic Management Plan in compliance with the City's Construction Management Program. Currently, Old State Management Corp. is looking into the availability of nearby parking garages, availability during construction of on-site parking facility, and special measures to aid and encourage transit use; which will further remove traffic impacts due to construction workers on downtown Boston streets.

8.2.2 Truck Volumes

Trucks will be needed to remove material excavated from the site and to deliver construction materials to the site. Truck traffic will vary throughout the construction period, depending on the activity on each portion of the site. The volumes described below are estimates and may change as the construction schedule becomes finalized.

The largest anticipated number of construction trucks (approximately 10-15 per day) should service the site during the second and third quarters of 1992. This peak volume corresponds with the steel and concrete operations during the erection of the office tower. The volume should decrease thereafter. The minimal amount of excavation on this project should not create any significant construction truck volume prior to the steel and concrete operations.

The impacts caused by construction trucks during the evening peak hour are expected to be minimal because most deliveries will be completed prior to the afternoon rush hour. Morning rush hour impacts are expected to be minor due to deliveries being spread uniformly during the work day. The peak daily volume of trucks at the Forty Franklin site translates to less than two (2) trucks per hour if distributed uniformly over an eight-hour day.

8.2.3 Truck Routes

Limiting the impacts of construction traffic and truck noise on the adjacent smaller streets and neighborhoods were the most important factors in determining truck routes. Enforcement of truck routes will be accomplished through clauses in the contractors and subcontractors agreements, monitored by the operations manager.

The proposed truck route assumes that truck traffic will travel on either the Massachusetts Turnpike or the Expressway for the majority of their routes (Figure IV.8.2). Traffic from the Massachusetts Turnpike will exit at the Kneeland Street/Atlantic Avenue intersection and then travel northbound on the Surface Artery and then Federal Street to Franklin Street. Traffic from the Expressway northbound would exit at Kneeland Street/Atlantic Avenue and utilize the same routes described above.

Traffic from the Expressway southbound would exit at Dewey Square travel westbound on Federal Street to Franklin Street.

All truck traffic from the staging areas will exit ultimately via Milk Street to Congress Street to the Surface Artery. Although not a preferred route, a small portion of the truck traffic will exit the Franklin Street staging areas via Hawley Street and Summer Street to the Surface Artery.

8.3. Street and Sidewalk Closure and Staging

During construction of the project, it may be required to temporarily close portions of sidewalks and streets surrounding the site to pedestrians and automobiles. A detailed construction plan will be included in the Traffic Management Plan in compliance with the City's Construction Management Program required by the Boston Transportation Department (BTD) prior to the start of construction.

Old State Management Corp. will work with the BTD and other appropriate city agencies to finalize the plan. The street and sidewalk closures described below are subject to change based on further discussions with the BTD and other appropriate agencies.

8.3.1. Sidewalks

Maintenance of pedestrian movement along Washington Street is of major importance and will be a key criterion for construction planning. Therefore, construction activity on Washington Street will be restricted to short-term operations directly pertaining to Washington Street, such as modifications to the skin of the building, should that work be included in the project scope. Construction traffic will be routed away from Washington Street at all times.

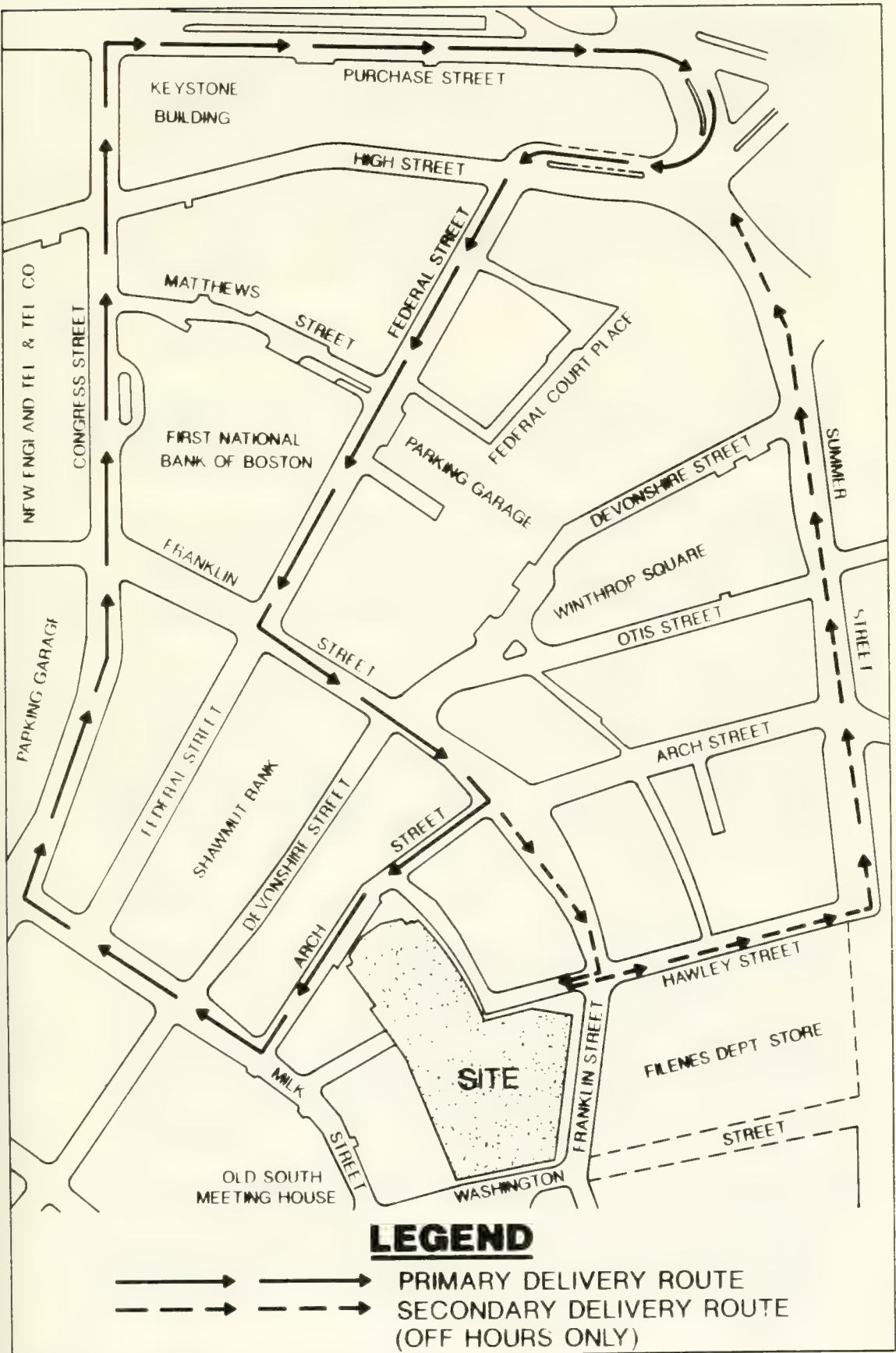


Figure IV.8.2 Proposed Truck Delivery Routes

The sidewalks along the west side of Washington Street between Franklin and Milk Street will be open throughout the construction while those on the east side, adjacent to the project, will be maintained and protected for pedestrian activity throughout the construction period with only brief interruptions.

Sidewalks along Arch Street will remain in service during construction. The sidewalk presently along Hawley Way will be closed to pedestrians during the most critical and dangerous construction period.

8.3.2 Streets

Franklin Street will remain one way from Hawley to Washington with at least one lane plus a taxi wait zone. The remaining lane will be sought for construction activities and staging as required.

Arch Street will remain one-way from Franklin Street to Milk Street and will serve as the single entrance and exit path to the parking garage during the first eleven months of construction. Traffic directions on Milk Street will remain unchanged.

The portion of Hawley Street which now serves as the garage entrance will be closed to service until the new ramp system is in place (approximately 11 months from initiation). The portion of Hawley Street connecting to Milk Street will remain in service as a two-way cul-de-sac until the new garage ramp system is in place, and one-way through traffic is established from Franklin Street to Milk Street along Hawley Street.

8.3.3 Construction Staging Areas

The staging for the development will be located to ensure safe and efficient construction with a minimum of disruption to the existing tenants, pedestrians, and automobile traffic in the surrounding area. In determining scheduling, truck routes, and staging locations for the proposed Forty Franklin project, particular attention will be given to ensure the protection of Washington Street and its pedestrian nature.

The proposed staging plan is designed to isolate the construction while providing safe access for pedestrians and automobiles during normal day to day activity and emergencies. A detailed construction plan will be included in the Traffic Management Plan in compliance

with the City's Construction Management Program as required by the Boston Transportation Department (BTD) prior to construction. The following pages include a description of the proposed staging locations and provisions for delivery and storage of construction materials and equipment. Figures IV.8.3 through IV.8.6 illustrate the staging areas. This plan, however, may change after further discussion with the City.

8.4. Demolition, Excavation, and Foundation Construction

8.4.1 Demolition

Demolition relating to the access/egress barrel ramps and associated footings will be required as well as demolition of the exterior facade of the existing Woolworth and parking garage structure.

8.4.2 Method of Demolition

State-of-the-art demolition techniques will be utilized at the Forty Franklin project. The existing structures and facades will be mechanically disassembled. The exact techniques and methodology, however, are still being determined at this time.

8.4.3 Debris Composition and Disposal Sites

The disposal options for demolition debris depend upon the materials to be disposed of and the current regulatory constraints. Two types of debris may likely be removed from the site, hazardous and non-contaminated debris. Should hazardous debris be identified, it will be removed prior to demolition. As described above, any contaminated waste will be managed and disposed of by a licensed contractor in an approved landfill in accordance with all applicable Federal, State and local regulations.

The bulk of the construction debris will consist of non-contaminated steel, concrete, and brick. Re-steel, concrete and brick waste will be disposed of in an approved landfill under the authority of the contractor. To prevent the accumulation of debris on-site, disposal of debris will be carried out while the demolition is occurring. The naming of specific sites for disposal is premature at this time since conditions and available disposal sites may change by the time construction begins. The demolition contractor will be charged with proper disposal, in compliance with all regulations.

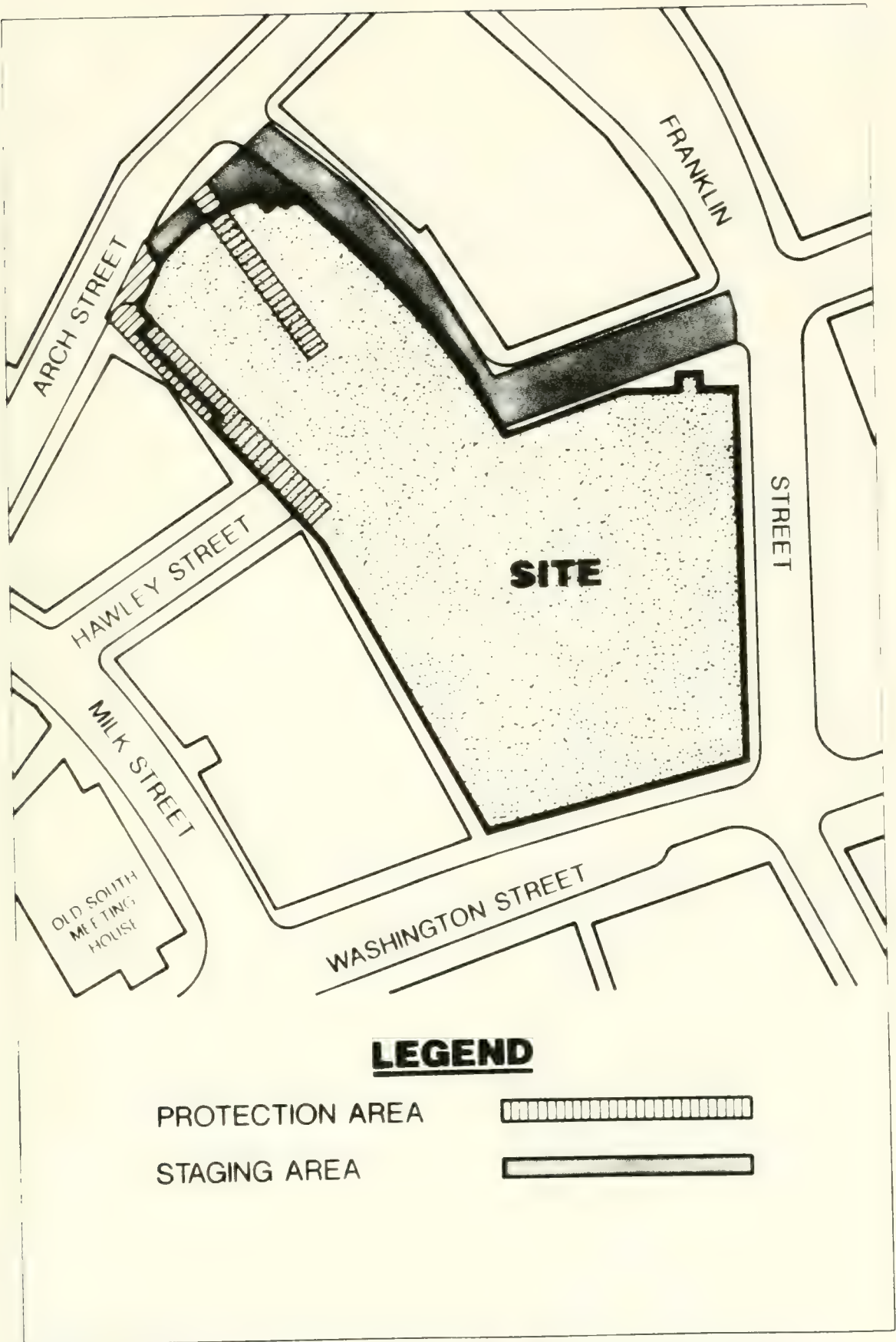


Figure IV.8.3 Construction Staging - Phase I

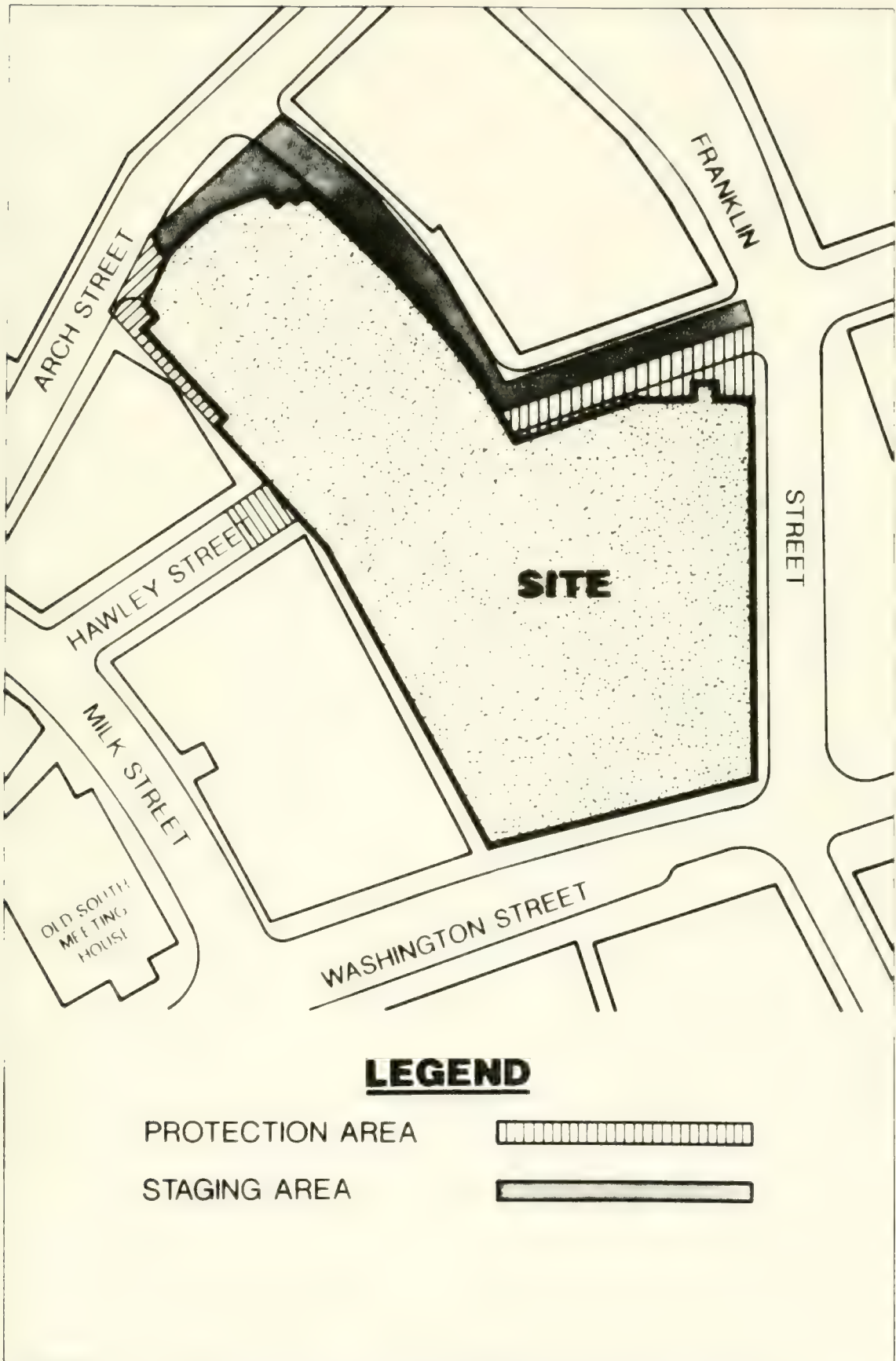


Figure IV.8.4 Construction Staging - Phase II/Final Phase

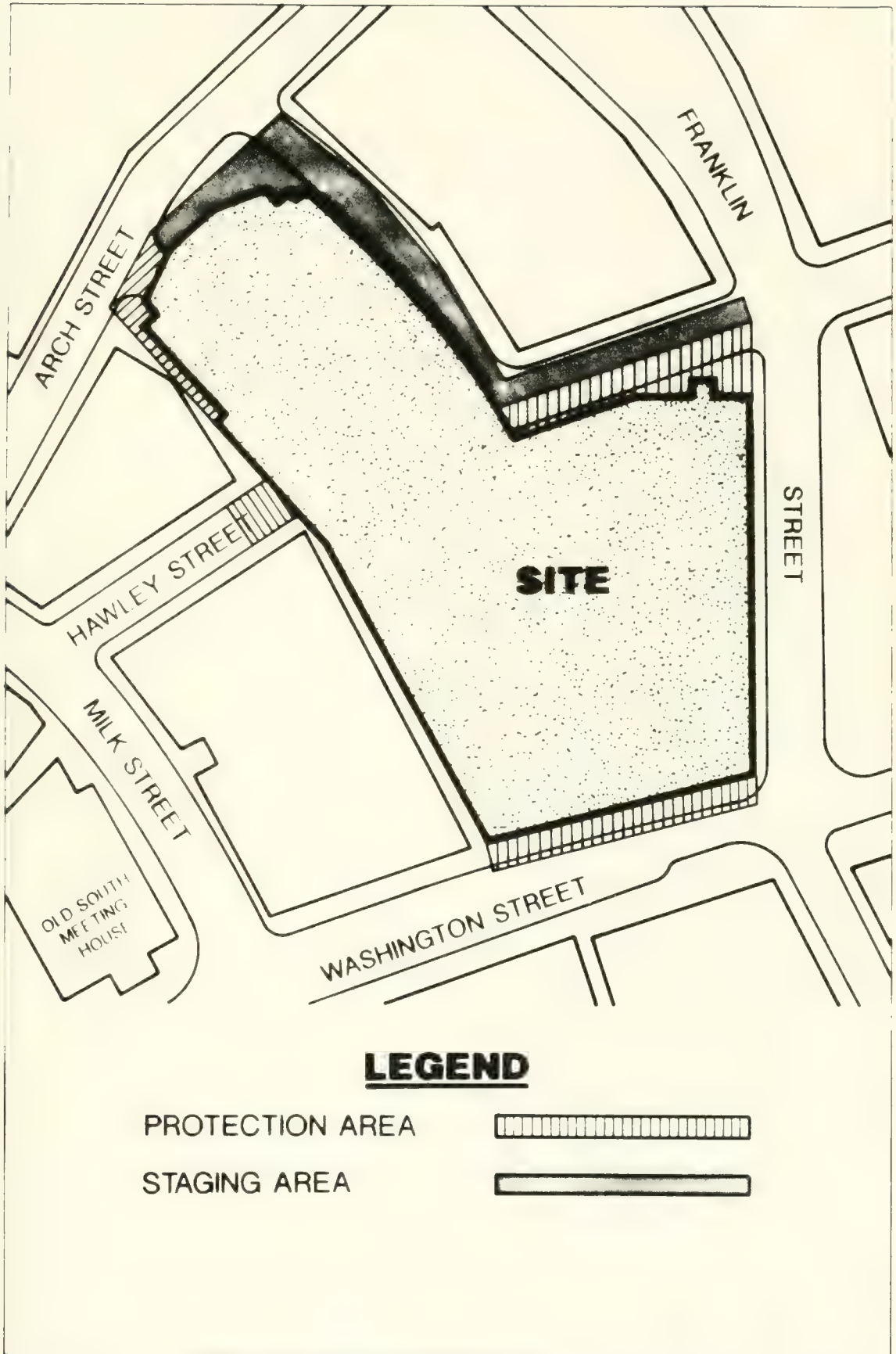


Figure IV.8.5 Construction Staging - Phase III

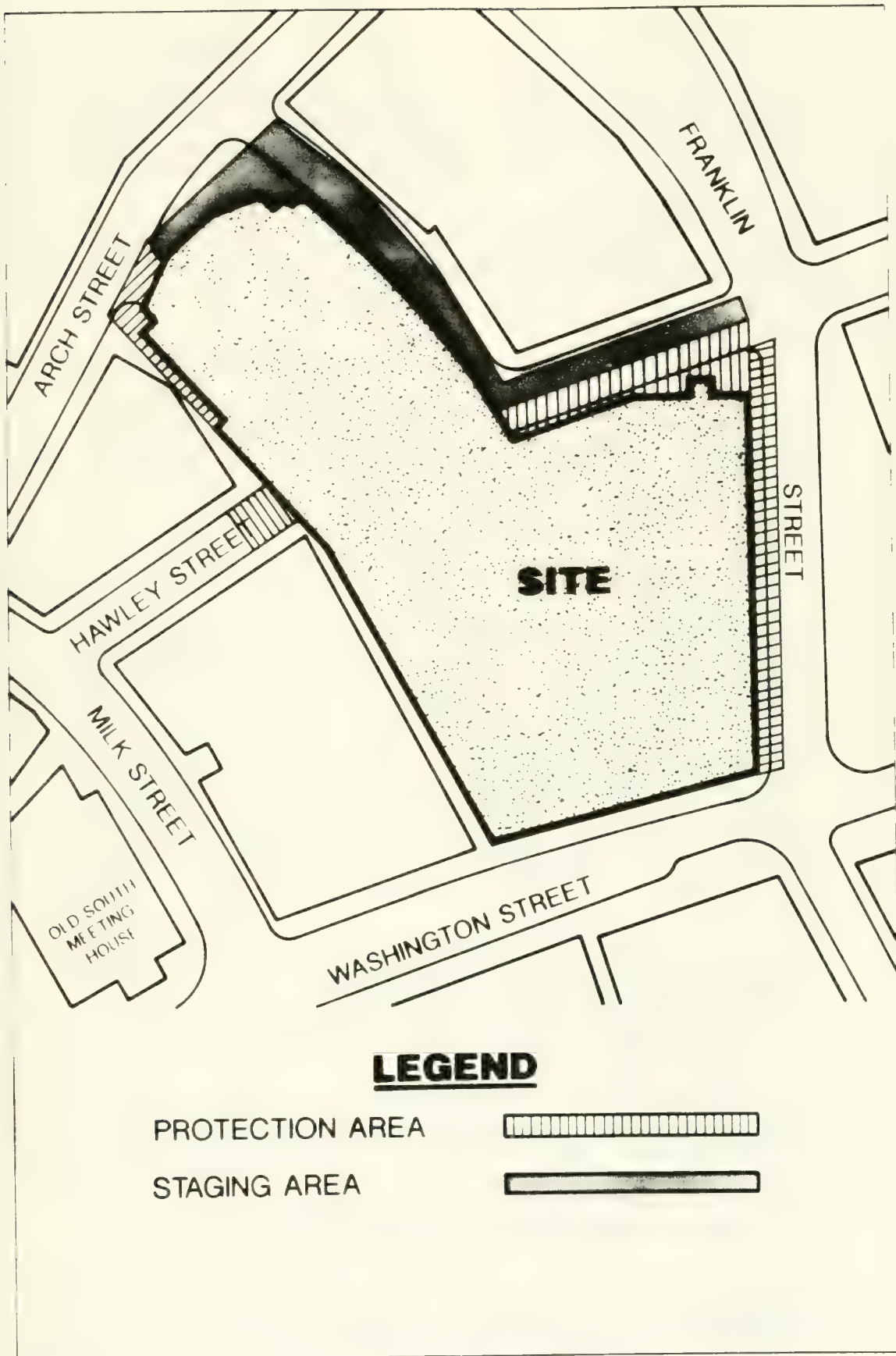


Figure IV.8.6 Construction Staging - Phase IV

8.4.4 Excavation

Currently, the Forty Franklin project requires minimal excavation. There may be one or two partial basement levels under the office tower. They will be excavated conventionally if they are needed.

The material excavated will not be suitable for subsequent reuse on-site and will be disposed of off-site in accordance with the Commonwealth of Massachusetts solid fill requirements.

8.4.5 Foundation

Although the foundation system for the project has not been selected at this time, the most likely system is drilled-in, straight-shaft piles or caissons. Accordingly, noise and vibration will be minimized.

8.5. Impacts of Construction on Adjacent Properties

Adjacent structures are supported on spread footing, mats, piles, or caissons which bear on or in the marine deposits or glacial till. These structures may undergo minor movements as a result of ground movements associated with the anticipated below-grade construction. The cause-effect relationship of ground movements is very complex, however, and ground movement does not necessarily result in settlement of adjacent structures. The proposed construction procedures will be designed to minimize ground movement. In particular, the piles or caissons selected will take non-displacement methods into accounts.

In summary, provisions are being incorporated into the design and construction procedures to limit potential adverse impacts to adjacent structures, and therefore, the impact to adjacent structures is anticipated to be minimal. The following measures will also be taken:

- o The design team will conduct studies, prepare specifications, and review contractor's submittals for conformance to the project contract documents.
- o All contractor designs and procedures will be discussed by the project design team prior to implementation.
- o Performance criteria will be established for the lateral earth support system if required, with

respect to movements, and the construction sequence of the below-grade structures will be controlled by specific requirements in the project specifications. The contractor will be required to modify his methods and take all necessary steps during the work to protect nearby buildings and structures.

- o Geotechnical instrumentation will be installed as and if deemed appropriate by the design team and monitored to observe the performance of the excavation, adjacent buildings and structures, and area groundwater levels and to identify the development of any adverse conditions.

8.5.1 Impacts on Utility Lines

Construction of the below-grade facilities at the proposed Forty Franklin site will require the relocation and/or protection in place of existing utility lines. The planned construction procedures to protect adjacent structures will also limit any potential adverse impacts on the adjacent utility lines. Special consideration will be given to utility facilities which are identified by the appropriate agency as being especially sensitive to adverse impact by movement, such as active steam lines, older water and gas mains, and some older types of telecommunications facilities.

8.5.2 Impacts on Groundwater Levels

The construction of the additional levels above Woolworth will not require groundwater lowering. Therefore, the construction of these structures will not impact area groundwater levels.

8.5.3 Comparison of Impacts to 155-Foot As-of-Right Scheme

The geotechnical and groundwater impacts are anticipated to be the same for the proposed Forty Franklin project as for the 155-foot as-of-right alternative. In this case, the height of the tower in the proposed project does not affect the excavation or foundation construction impacts.

8.6 Construction Air Quality

8.6.1 Potential Impacts

Project-related air quality impacts are anticipated to be

limited to emissions of fugitive dust during the demolition construction periods and are expected to be minimal. Pollution generated from construction-related traffic and construction machinery should be minor and not result in any adverse impact to air quality. Fugitive dust emissions from construction activities will depend on such factors as the properties of the emitting surfaces (e.g., soil silt content, moisture content, and volume of spoils), meteorological variables, and construction practices employed.

8.6.2 Mitigation

To reduce emissions of fugitive dust and minimize impacts on the local environment, a number of strictly enforced mitigation measures will be adhered to. These include:

- o The use of wetting agents on areas of exposed soil and demolition activities on a scheduled basis.
- o Use of covered trucks for transportation of excavated material and demolition debris.
- o Minimizing storage of debris on-site.
- o Locating aggregate storage piles away from areas having the greatest pedestrian activity.
- o Monitoring of actual construction practices to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized.
- o Periodic street and sidewalk cleaning to minimize dust accumulations.

8.7 Construction Noise Impacts

8.7.1 Construction Noise Levels

Construction activities will result in the creation of temporary noise and vibration impacts, as a result of the operation of construction equipment on-site and traffic to and from the construction site. Actual noise levels will depend on such factors as the location of the work and the choice of equipment used. Noise generated by construction truck traffic will be temporary. To a large extent, this noise will be masked by high ambient noise levels. Although detailed construction schedules have not yet been developed for the Forty Franklin project, noise level measurements taken at other downtown

construction sites can be used to estimate the potential noise impacts associated with the project.

Noise from a climbing-tower crane in use at a construction site dominates that site's overall noise emissions. Crane noise was found to be almost continuous, and was evident for about 85 percent of the noise measurement period. When the crane was not operating, the background level was found to be dominated by street traffic noise.

Bolting up and air-hammering dominated the noise coming from the steel erection activities at another construction site. Street-level noise is controlled primarily by noise from riveting and hammering. These activities were intermittent in nature, occurring for just about 10 percent of the noise measurement period. Air compressors were also found to strongly influence the overall noise emissions from the site.

8.7.2 Construction Noise Impact Analysis

Two types of receptors receive exposure to construction noise; persons who live and work in the surrounding area; and drivers and pedestrians in the project area.

The Forty Franklin site is in an area where a variety of land uses exist. The area is dominated by commercial establishments and office space.

Noise levels in the project area will increase during construction of Forty Franklin. Persons walking by the site while equipment is operating will experience the highest noise levels. This temporary noise exposure will only last for the brief period of time required for a person to walk past the site.

The City of Boston has noise regulations for construction activity stating the maximum allowable noise levels at the lot line based on the type of land use. The maximum noise level that may be exceeded 10% of the time (L_{10}) is 80 dBA at the affected property line in a business area, excluding impact devices. Mitigation measures will be utilized to help reduce noise levels to the extent possible.

In summary, pedestrians adjacent to the construction area may experience annoying noise levels as they pass the site. These levels will abate quickly as they walk away from the site. The urban environment that exists in the project area will, in part, mask the temporary increased

noise levels during construction at the site. Persons inside buildings should not be significantly affected by construction activities.

8.7.3 Mitigation

There are a number of measures which will be taken to mitigate noise at the Forty Franklin construction site, including:

- o Use of appropriate mufflers on all equipment.
- o Installing enclosures around the work area where stationary equipment is being used.
- o Scheduling equipment operations to keep average levels low, to synchronize noisiest operations with times of highest ambient levels, and to maintain relatively uniform noise levels.
- o Turning off idling equipment.
- o Locating noisy equipment as far as possible from sensitive areas.

With use of appropriate mitigating measures, a reduction in construction noise levels of 5 to 10 dBA might be achieved.

8.7.4 Variations in Impacts of Alternatives

The variations in impacts of the two Full-Build alternatives are expected to be minimal. The type of cranes used would be slightly different for the 155-foot alternative, however, the difference in impacts will be minimal. The duration of construction would not be significantly less for the 155-foot alternative.

9.0 Rodent control

9.1 Summary and analysis of effects

In urban conditions, construction activities will disrupt existing rodent populations. Rodents in the vicinity will also be attracted to new construction. Without proper control, rodents would be present in ever increasing numbers during construction and would be present upon completion of construction.

9.2 Mitigation

In accordance with the State Sanitary Code, Chapter II, 105 CMR 410.550, the construction manager will engage a certified rodent control service whose program will include the measures described below.

9.2.1 Rodent Control Program

- o Inspection of all areas of the site for burrowing rodents.
- o Treatment for rodents burrowing in earth or under sidewalks during excavation and frame erection.
- o Treatment for rodents in all construction-site areas throughout all phases of construction and finishing.
- o When necessary, treatment of exterior areas of adjacent properties within 200 feet of the construction-site.
- o Documentation of rodent activity and reporting on ground-level rodent entry points that should be rodent proofed.
- o During site excavation and frame erection extra attention will focus on the following areas:
 1. Contractors' trailer.
 2. Rubbish disposal areas.
 3. Existing loading docks.
 4. Utility openings in the foundations.
 5. Unexcavated areas and sidewalks.
 6. Vulnerable street-level areas such as parking ramps and pedestrian doorways.
- o Rodent control inspections and treatments for construction mitigation will continue until tenant occupancy, or release to the building management.

Off site rodent control may be requested by Boston's Inspectional Services Department based on their inspection or reports of rodents sighted by neighbors. Construction management's responsibility will be to exterior areas within 200 feet of the site.

9.2.2 Program Specifications

- o Frequency of service:
 1. Service will be scheduled 12 times per year.
 2. Additional service will be available for emergency situations.
- o Inspections and treatments for rats and mice:
 1. Prior and throughout the excavation and frame erection phases, the general focus will be on rats.
 2. As the buildings near completion, throughout finishing phases, the focus inside will necessarily be on mice. Mice will be attracted to the new construction and to food left by construction workers.

All materials to be used will be approved for use in the Commonwealth of Massachusetts.

V. URBAN DESIGN

INTRODUCTION

This section addresses a range of urban design and visual quality issues associated with Options A, B, and C. The three options are examined in terms of their individual attributes and their relationship to the character of surrounding districts.

The discussion begins with a description of the project area's urban design context and of the various public plans, policies and guidelines for the area. The impact analysis follows a description of the project and includes discussion of perspective views and the project's relationship to the urban design objectives set forth in the Midtown Cultural District Plan.

Briefly, findings indicate that the scale of Options A and C appear compatible with both the high-rise development of the Financial District and the lower rise development of the Washington Street/Downtown crossing area. The effect of introducing an office tower at the Arch Street end of the site is expected to result in minimum visual impact to the important pedestrian areas, given its location with major setbacks from Washington, Milk and Franklin Streets, and appropriate design measure involving massing, materials and facade articulation. Although Option C is lower than Option A, the visual impact of A is not significantly greater. In fact, due to the lower height of the Woolworth portion, Option A appears less intrusive on Washington and Franklin Streets than does Option C. Option B, the as-of-right scheme, although much lower in total height than Options A or C, seems to have greater impact on Washington, Franklin and Milk Streets due to its increased height close to these streets.

2.0 URBAN DESIGN CONTEXT

2.1 Project Site

Forty Franklin's site is bounded by Washington Street, Franklin Street, Hawley Street, New Hawley Place and Arch Street. The site is currently occupied by a building which covers the entire site, except for an open parcel on Arch Street that was originally designated for street widening. The building is mixed use, consisting of four levels of retail plus basement with a six-level parking garage above. Most of the retail space is used by F.W. Woolworth, with a small area occupied by the Lauriat's bookstore at the corner of Franklin and Hawley Streets.

The parking garage is located above the retail levels and is accessed from Arch and Hawley Streets by means of a circular ramp system located between Arch and Hawley Streets.

2.2 Surrounding Context

The project is centrally located in downtown Boston, at the northeasterly corner of Downtown Crossing and the Midtown Cultural District, directly adjacent to the Financial District to the south and southeast. Figure V.2.1 locates the site on an area map of downtown Boston.

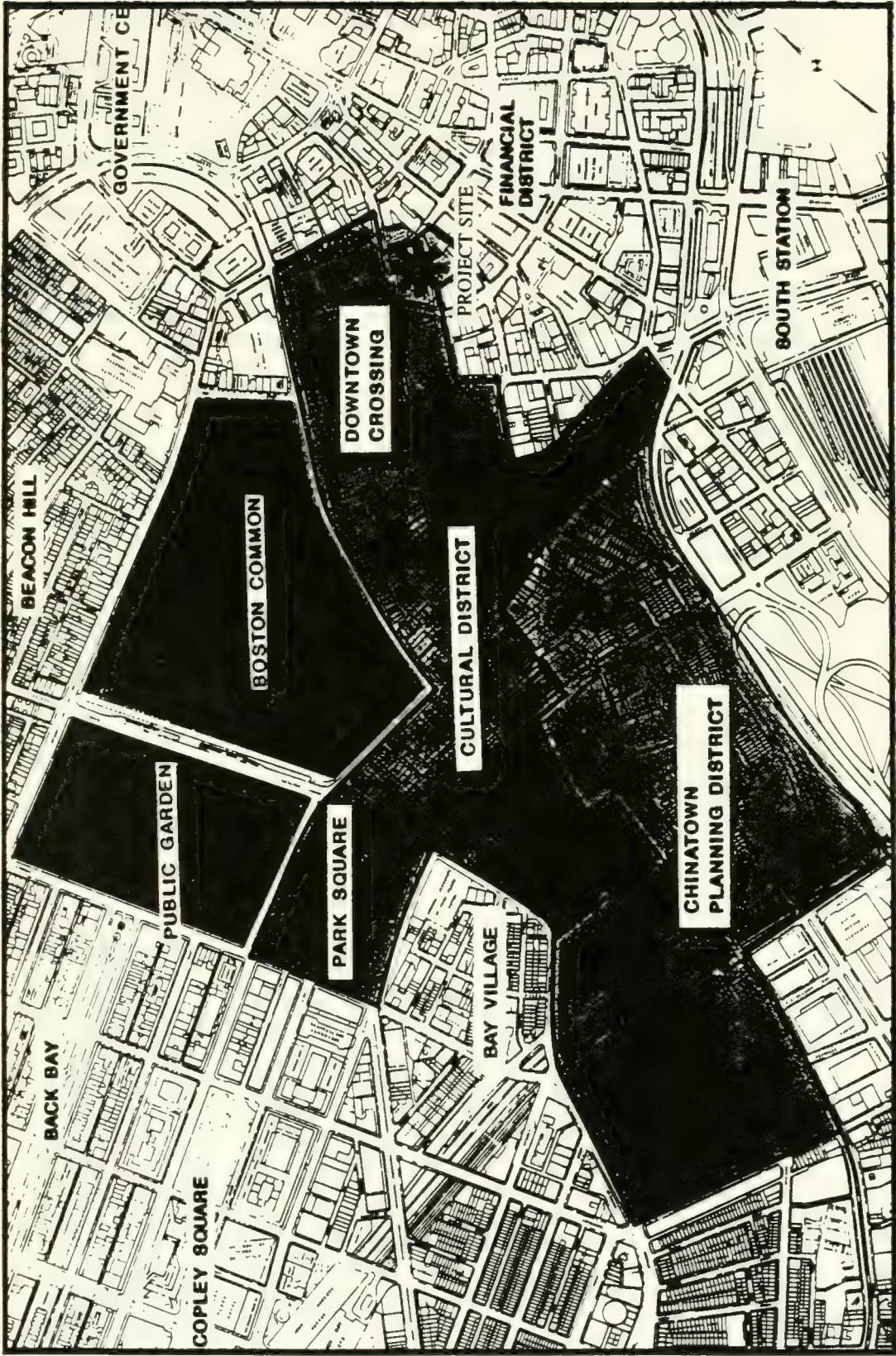
2.2.1 Midtown Cultural District and Downtown Crossing

The recently established Midtown Cultural District includes portions of Downtown Crossing south of School Street, the Essex Street Corridor and Chinatown, the historic Cultural District, and Park Square. The district is characterized by low and midrise commercial buildings and historic theatres clustered primarily along Washington Street and Boylston Street. Historic buildings, illustrative of 19th-century commercial architecture of downtown Boston, line the short "ladder blocks" west of the project site. These buildings, usually of brick and masonry construction, are mostly of uniform scale and height.

2.2.2 Downtown Crossing

Established in 1979, Downtown Crossing is a twelve-block pedestrian zone located within the Midtown Cultural District. It is anchored by two major department stores: Filene's and Jordan Marsh. Both stores are located at the crossroads of Washington, Summer, and Winter

GENERAL CONTEXT



SOURCE: MIDTOWN CULTURAL DISTRICT PLAN

FIGURE V 2.1

Streets. In addition to these department stores, Downtown Crossing consists of smaller retail stores selling specialty goods making up the balance of the retail trade in this area. In 1984, Lafayette Place was opened, providing additional specialty retail stores in an internal mall. F.W. Woolworth is the largest store outside of Jordan Marsh and Filene's in Downtown Crossing and can be considered a small department store which caters to the moderate-price market.

Over two thirds of downtown Boston's 300,000 employees work within a five-minute walk of the District, and over 100,000 pedestrians per day pass by the shop fronts in the Downtown Crossing pedestrian zone. The streetscape in this pedestrian zone is characterized by brick paving, historic era lights, benches, and licensed pushcarts designed to Downtown Crossing standards. The Forty Franklin site is located in a transitional area between the pedestrian zone and the downtown Financial District.

In the last five years, the area that comprises the Midtown Cultural District has been experiencing growth in the form of building renovations and major new mixed-use project proposals. These include Commonwealth Center at the corner of Boylston and Washington Streets, Boston Crossing, the Kingston-Bedford Parcel, 90 Tremont Street, 45 Providence Street, and 110-120 Tremont Street. These developments are being reviewed by the Boston Redevelopment Authority to ensure that they confirm with principles of the Midtown Cultural District Plan which seeks to "create a vibrant, mixed-use economy by extending the office economy up the Bedford/Essex corridor [and by] protecting and expanding the Downtown Crossing retail economy."

2.2.3 The Financial District

The Financial District is located south and east of the project site. Along the district's irregularly winding colonial street pattern are 19th and early 20th century commercial buildings, rebuilt after the Great Fire of 1872, interspersed with recent modern high-rise buildings. New office construction in recent years has centered in the Financial District, including One Financial Center, 101 Arch Street, 53 State Street, 75 State Street, 99 and 125 Summer Street, and 101 Federal Street. In addition, Devonshire Tower, a residential/office building, is located between Washington and Devonshire Streets, two blocks northeast of the site.

2.3 Planning context

The Midtown Cultural District Plan was implemented by the BRA to direct downtown development in a way that promotes balanced growth for Boston. The plan seeks to promote mixed use development in Midtown and encourages the revitalization of Midtown as the city's center for performing and visual arts by rehabilitating historic theatres and creating new cultural facilities for the city's non-profit arts community. The plan provides for expansion of the Chinatown neighborhood, encourages preservation of the District's historic resources and open spaces, and seeks to create a new residential neighborhood downtown. The plan recognizes the contextual significance of neighborhoods surrounding Downtown Crossing and establishes specific objectives for accomplishing its goals for balanced development.

The Midtown Plan sets design objectives for city streets, the street grid itself, commercial continuity within the District, streetwalls, street environment, tower setbacks, interior retail space, building materials and detailing, cultural facilities, public spaces and child care facilities.

Recently adopted zoning under Article 38 of the Boston Zoning Code supports the objectives of the Midtown Cultural District Plan by allowing for Planned Development Areas (PDA's). The site of Forty Franklin is designated as PDA-1. PDA-eligible areas were formed in order to "establish a more flexible zoning law and encourage large-scale private development on underutilized sites in the Midtown Cultural District while ensuring quality design by providing planning and design controls." Under Article 38, proposed projects within a PDA must fulfill certain public benefit criteria, must meet general design and environmental standards, must enhance the pedestrian environment, and must be generally consistent with the modified high spine/cluster skyline plan. In accordance with Section 38-1 of the Boston Zoning Code, the proposed project must be architecturally compatible with surrounding structures, enhance the urban design features of the Midtown Cultural District, augment the quality of the pedestrian environment and be consistent with established guidelines of the Midtown Cultural District Plan and Zoning.

Section V.4.0 highlights the project's conformance to the urban design objectives set forth in Article 38 and the Midtown Cultural District Plan.

3.0 PROJECT DESIGN DESCRIPTIONS

3.1 Existing Condition

The site is currently occupied by a mixed-use structure consisting of a six-level open parking garage over a four-level-plus-basement retail store. The major retail tenant is F.W. Woolworth Co. which utilizes all the retail space, except for a portion of two levels at the corner of Hawley and Franklin Streets, occupied by Lauriat's Books, Inc.

The six-level parking garage is accessed via a double circular automobile ramp located between Hawley and Arch Streets. The ramp system can be entered from Arch Street or Hawley Street, but exiting from the garage is possible only on to Arch Street.

Although the face of the building extends to the property line along Hawley, Franklin and Washington Streets, the street-level facade is set back 18 feet, creating a covered sidewalk pedestrian arcade. Entrances to the building are located on the arcade. The main entrance to Woolworth is on Washington Street, with a secondary entrance on Franklin Street. The entrance to Lauriat's is at the corner of Hawley and Franklin Streets and the pedestrian entrance to the parking garage is on Franklin Street, midway between Washington and Hawley. The Franklin Street entrance to Woolworth, via the Harvest Restaurant, also serves the garage elevator lobby, and was designed to provide access to Lauriat's as well. However, the entrance was closed for security reasons several years ago. Similarly, the entrance to the MBTA's Orange and Red Lines' Downtown Crossing Station from the elevator lobby was closed and relocated to the new kiosk in Filene's Park.

The site slopes down approximately 15 feet from Washington Street to Arch Street. The Woolworth entrance located at Washington Street is at the first floor level whereas the entrance to Lauriat's at Hawley and Franklin Streets is almost a full floor lower.

The building was built in the late 1960's, and, architecturally, reflects its time. The exposed, cast-in-place concrete structure is a dominant exterior material with concrete window mullions and brick infill panels occurring in the upper levels of the retail portion. Aluminum and glass store front or brick infill panels are used for the wall of the street-level arcade. The garage exterior consists of exposed concrete parapets which extend horizontally in front of the concrete columns. The overall expression is simple and

utilitarian, devoid of decoration, elaboration or richness typically seen in many of the older nearby buildings. Figures V.3.1 through V.3.12 provide the photographic evidence of the existing conditions.

3.2 Proposed Projects

3.2.1 Description of Development Options

Following submission and review of the Project and Environmental Notification Forms and accompanying design, three design programs were defined to form the DP/EIR basis of the. These options are:

Option A: A project with a height of 436.5 feet and a FAR of 18.1.

Option B: A project with an "enhanced" height of 155 feet, and an FAR of 10.

Option C: A project with a height of 362.5 feet and a FAR of 16 which complies with Article 38 of the Boston Zoning Code.

Option A is the program as described in the Project Notification Form and is the project proposed by the Proponent. Option B, the as-of-right (enhanced) scheme describes what would be possible without PDA designation or zoning variances, while Option C indicates a solution consistent with current zoning assuming the site is designated a Planned Development Area (PDA).

The PNF, submitted in October 1988, proposed a project that would totally renovate the exterior of the existing building and add an office building containing approximately 545,000 gross FAR square feet. The 22-story office addition resulted in a 399.5-foot high building (measured from Washington Street) with average tower floor plates of approximately 23,100 sq. ft.. The FAR was approximately 16. The design was based on keeping the circular "drum" ramp for garage access, and, therefore, shuttle elevators, one pair located at the corner of Franklin and Hawley and one pair located in the center of the "drum" provided access to the lowest new office floor. This "transfer" floor, which functioned as a "sky lobby," was the lowest floor served by the main office elevator banks.

In early 1989, a study was made to determine the feasibility of a concept that extends the main office elevator and stair core down to the street in order to

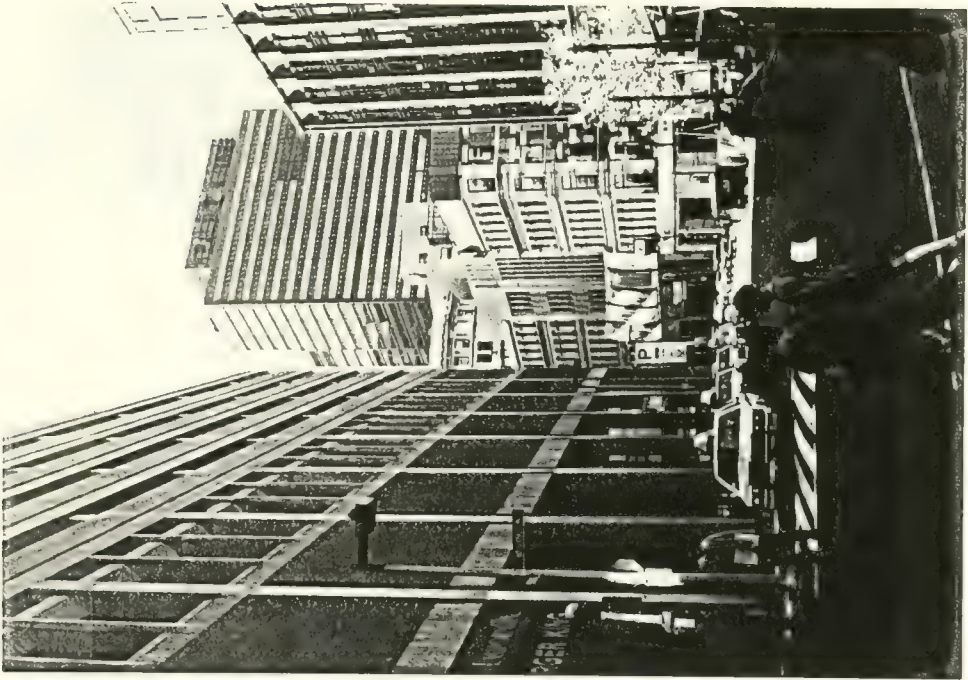


FIGURE V 3.1



FIGURE V 3.2

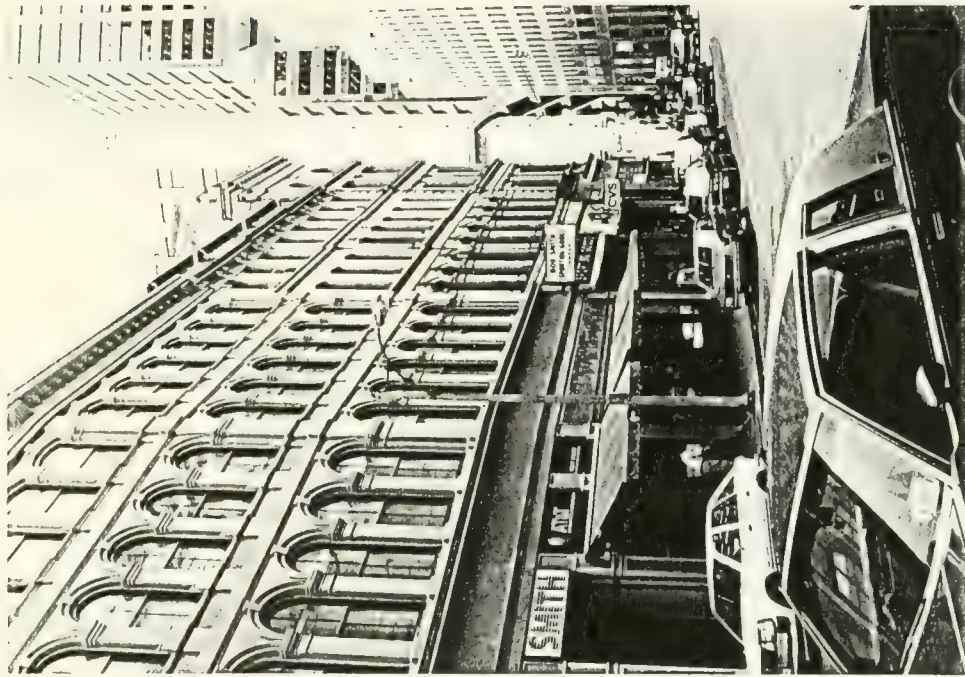


FIGURE V 3.4



FIGURE V 3.3



FIGURE V 3.5



FIGURE V 3.6

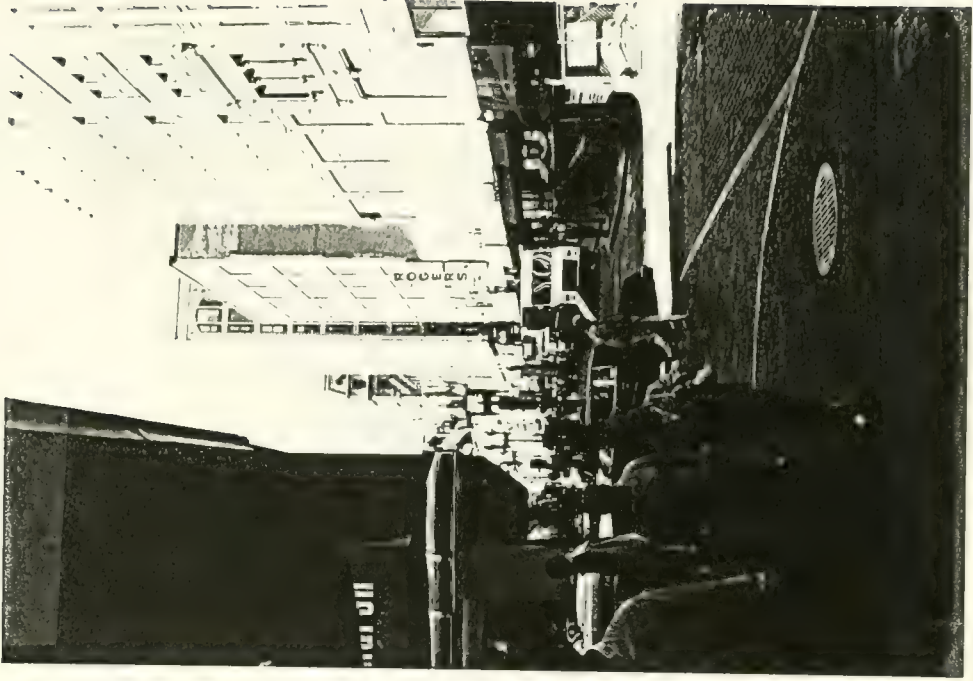


FIGURE V 3.8

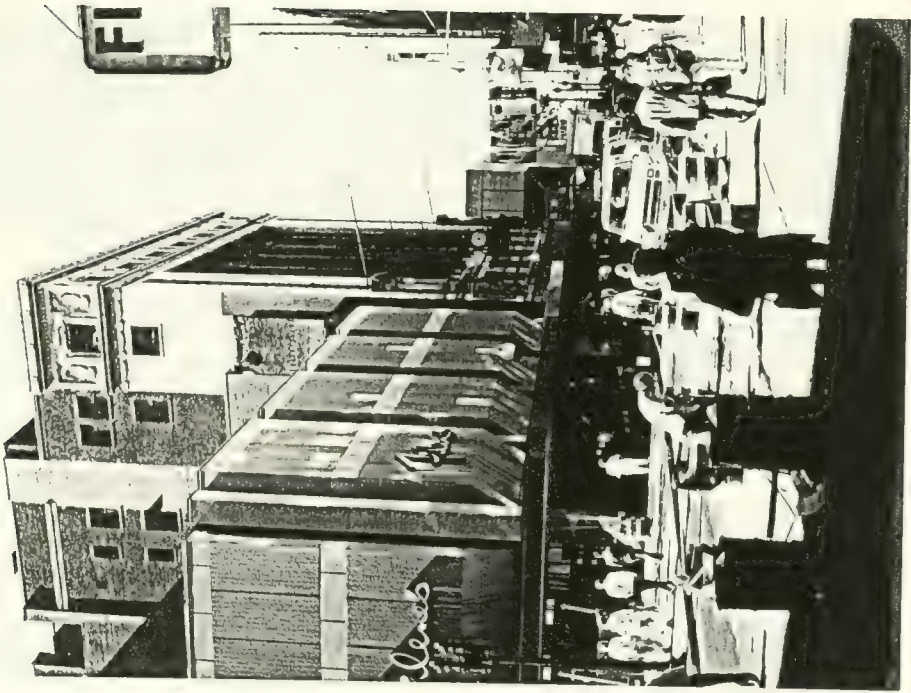


FIGURE V 3.7

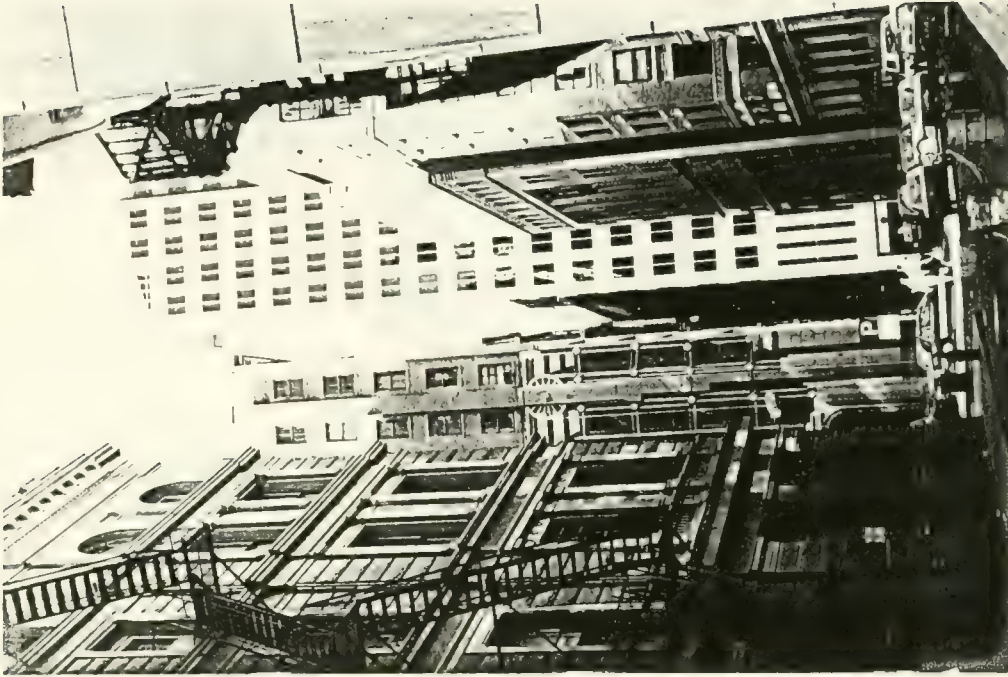


FIGURE V 3.10

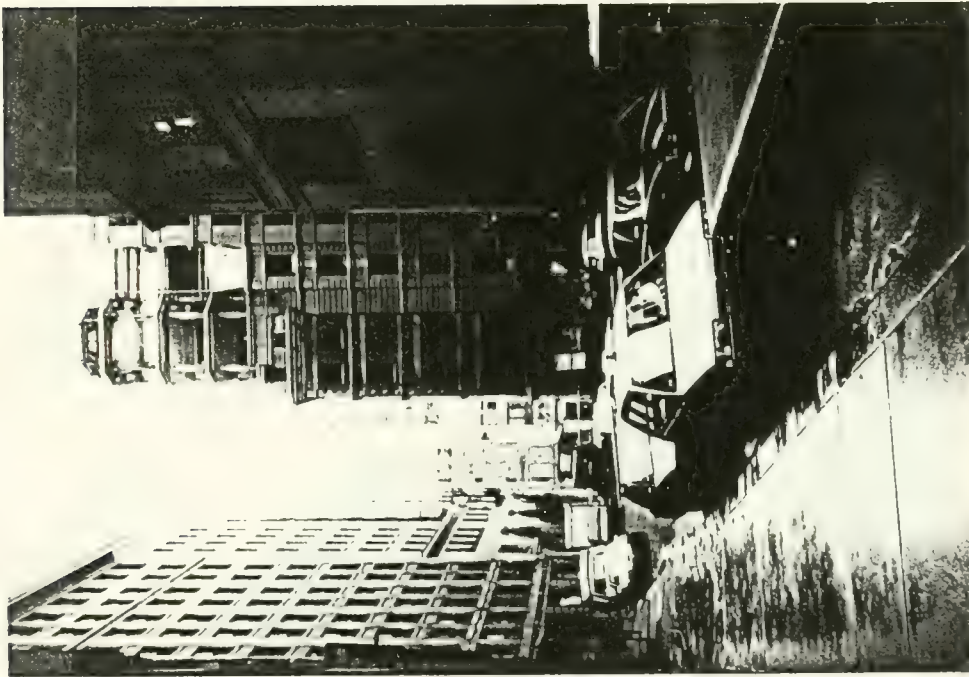


FIGURE V 3.9

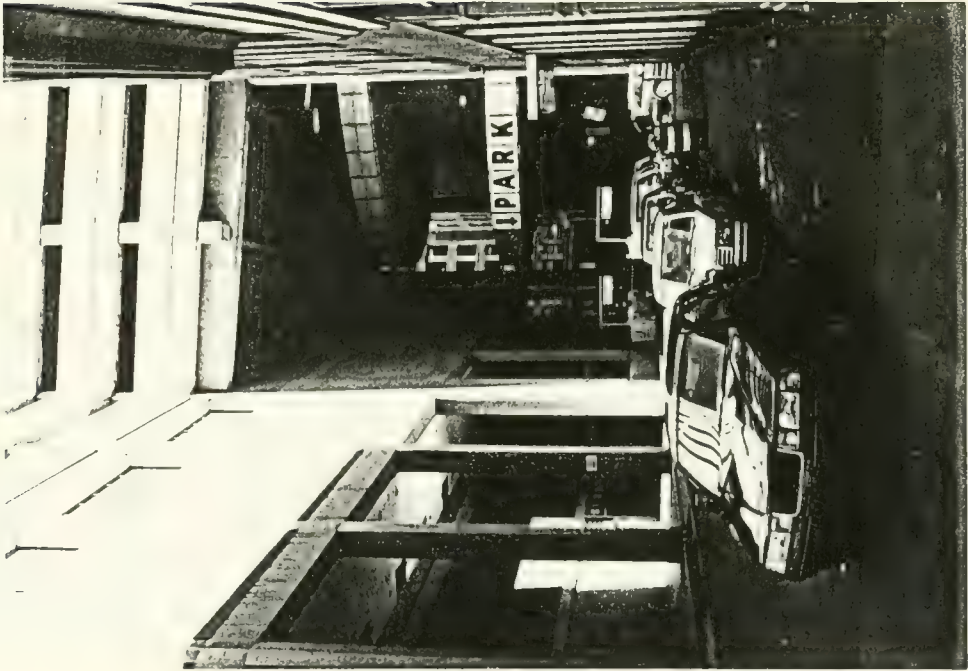


FIGURE V 3.11

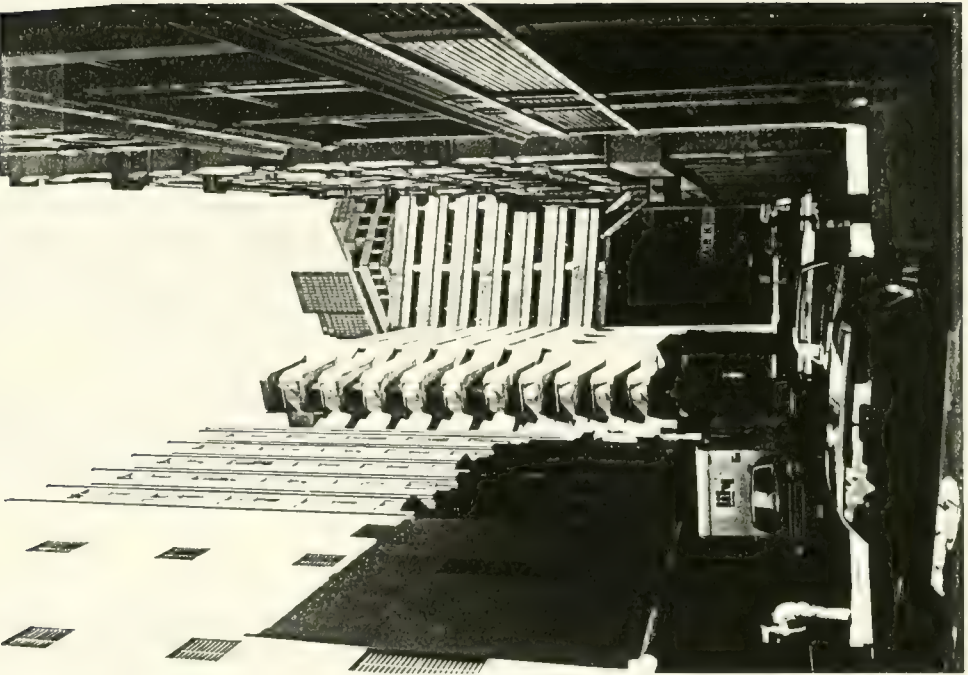


FIGURE V 3.12

eliminate the shuttle elevators and sky lobby, thus improving the vertical circulation of the office building. The results of the study indicated that the improvement was feasible, and the change was incorporated into subsequent design studies.

Following receipt of the Scoping Determination in February 1989, the Proponent's design team met numerous times with BRA staff over a three-month period to review various massing approaches related to the Option A program. The "stepped" scheme, Option A in this DP/EIR is the result of this collaborative process.

Table II.1 in Part II compares the program, height, floor plates and FAR for the existing building, the PNF scheme and current Options A, B and C.

3.2.2 Option A

The site for Option A consists of the land occupied by the existing building plus the BRA owned parcel located between the existing building and Arch Street. The area of the site is:

Primary Site (Parcel A-6)	58,819 s.f.
BRA Arch Street Parcel (BRA Parcel)	<u>5,101</u> s.f.
Total Site Area	63,920 s.f.

The basic development and design objective for Option A is to treat the site as a whole and completely renovate the exterior of the existing building while simultaneously adding a new office building containing approximately 543,000 FAR gross square feet.

The office building addition is located in the most easterly part of the site, set back away from Washington and Franklin Streets, where it will be perceived as part of the Financial District and serve as a link to the Downtown Crossing area. The office building massing is designed with two major setbacks, producing a "stepped" profile, which further emphasizes the transitional nature of the site and minimizes any impact to the pedestrian areas of the Downtown Crossing. In contrast to Option C and the earlier PNF scheme, there is no "transfer" floor covering almost the footprint of the existing building. All office space is contained in the tower mass, thus avoiding any major height increase along Franklin and Washington Streets. The only addition to the base element is a new roof or trellis level over the existing top parking deck in order to shield the parked cars from the new office tower and surrounding buildings. This new

level will be set back to the same line as the top parking deck, and its surface will be designed to present an attractive appearance when viewed from above.

The garage will be modified by closing the entrance and exit from Arch Street. The existing circular ramp system will be demolished, and replaced with a new sloped ramp oriented to Hawley Street, which will serve as the entrance and exit from the garage. Reconstruction of the ramp system will be in phases in order to avoid closing the garage to public use, except for short periods during off-hours. Studies are underway to determine the feasibility of filling in the existing lightwell located in the center of the garage in order to increase parking capacity by 90 cars. Although these studies have not been completed, for the purposes of this report, it is assumed that the well will be filled in and the capacity increased.

The existing four-level-plus-basement retail component occupied by Woolworth's and Lauriat's will remain essentially unchanged internally. However, the arcades, show windows, entrances and other exterior facade shall be completely redesigned and reconstructed in order to enhance the Downtown Crossing area and create a unified project.

The massing and architectural expression of Forty Franklin is designed to be compatible with the surrounding urban context. The existing nine-story building on the major portion of the site contained by Washington, Franklin, and Hawley Streets will receive only a roof addition, and its streetwall height will remain similar to the neighboring buildings of Downtown Crossing. The new office tower is oriented with its highest and narrowest facade on Arch Street and is located over the area of the existing garage and service entrance. In this location the office building will be perceived as a transitional building on the edge of the Financial District, rather than as a central element of Downtown Crossing. Exterior walls of the entire building will be sensitively detailed, using granite as the dominant material. Cornice lines and surface articulation of neighboring buildings will be respected by the massing and facade treatment.

By bringing the office building facade down to Arch Street, the project fills an unsightly gap in the street edge, yet provides a widened sidewalk space related to the office building entrance and to the new tower element of the 64-74 Franklin Street addition. The existing garage entrance and exit will be eliminated and replaced

by the new office tower entrance lobby and pedestrian walkways. Vehicular traffic on the street will be reduced, and Arch Street will be strengthened and revitalized as an important part of the Financial District.

The pedestrian experience on Washington and Franklin Streets will be enhanced by the proposed renovation of the existing arcades. New masonry exterior walls, show windows, lighting and paving will be designed to create an inviting, human scaled environment appropriate for the area and its users. Similarly, the Hawley Street arcade will be rejuvenated by complete reconstruction with new materials and systems, and the proposed reconnection of the two existing "dead ends" of Hawley Street will recreate it as a true street, eliminating its present back-alley character. The office building lobby, located between the Hawley Street arcade and Arch Street, is designed as a "concourse" and will provide a new pedestrian route from Downtown Crossing to the Financial District.

The office building's height of 436.5 feet (measured from Washington Street) is higher than currently allowed by PDA zoning but is consistent with many recent Financial District buildings, as well as with other recently approved Midtown Cultural District Projects; the lower mass on Washington Street and Franklin Streets is lower than permitted by zoning. The FAR of 17.4 is higher than permitted, due primarily to the added area resulting from the garage ramp reconstruction, and the possible infilling of the existing garage lightwell. Average floorplate is 21,740 s.f., well below the permitted 22,500 square feet.

Table V.3.1 provides the approximate area tabulation for Option A. Figures V.3.13 thru V.3.23 provide conceptual design drawings of Option A.

TABLE V.3.1
APPROXIMATE AREA TABULATION OF OPTION A
FAR GROSS - S.F.

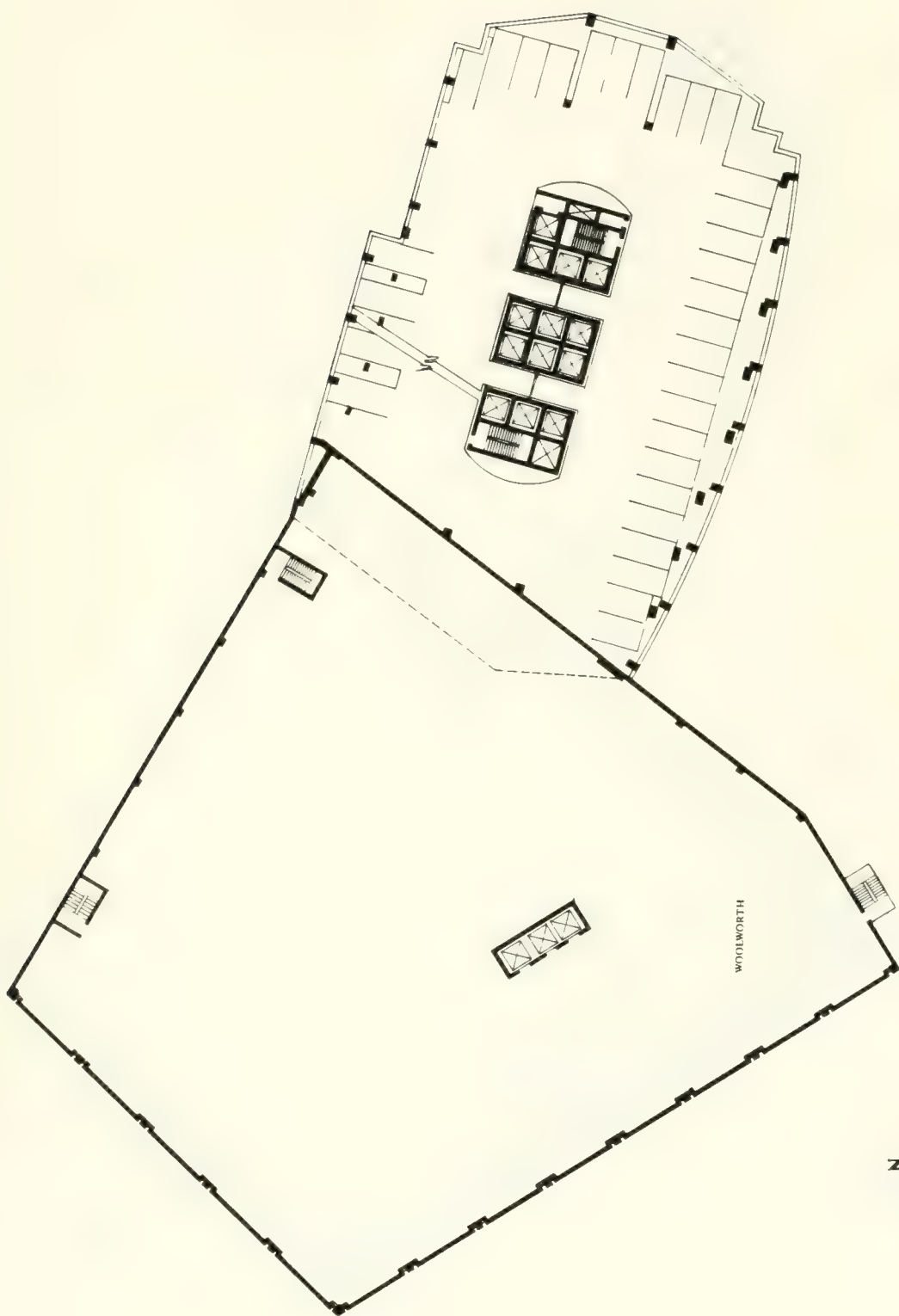
A. <u>Office</u>	Lobby	10,500
Floors 1-13	13 @ 22,470=	292,110
Floors 14, 15	2 @ 22,470=	44,940
Floors 16-19	4 @ 22,470=	89,880
Floors 20-25	6 @ 17,685=	106,110
Totals (rounded)		543,500
B. <u>Retail</u>		134,700
C. <u>Garage</u>		435,400
D. <u>Total</u>		1,113,600
E. <u>FAR</u>		17.4



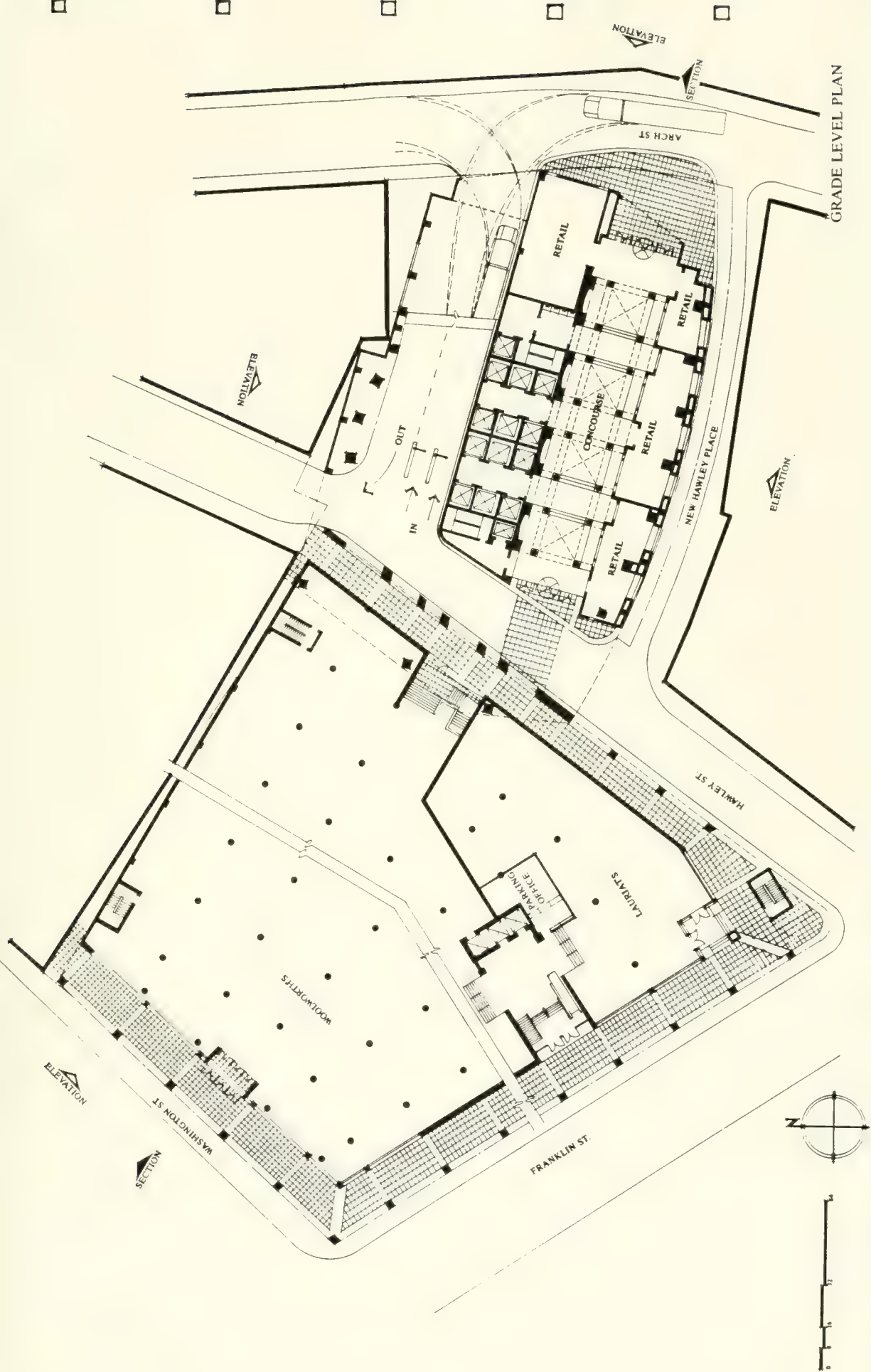
SITE PLAN

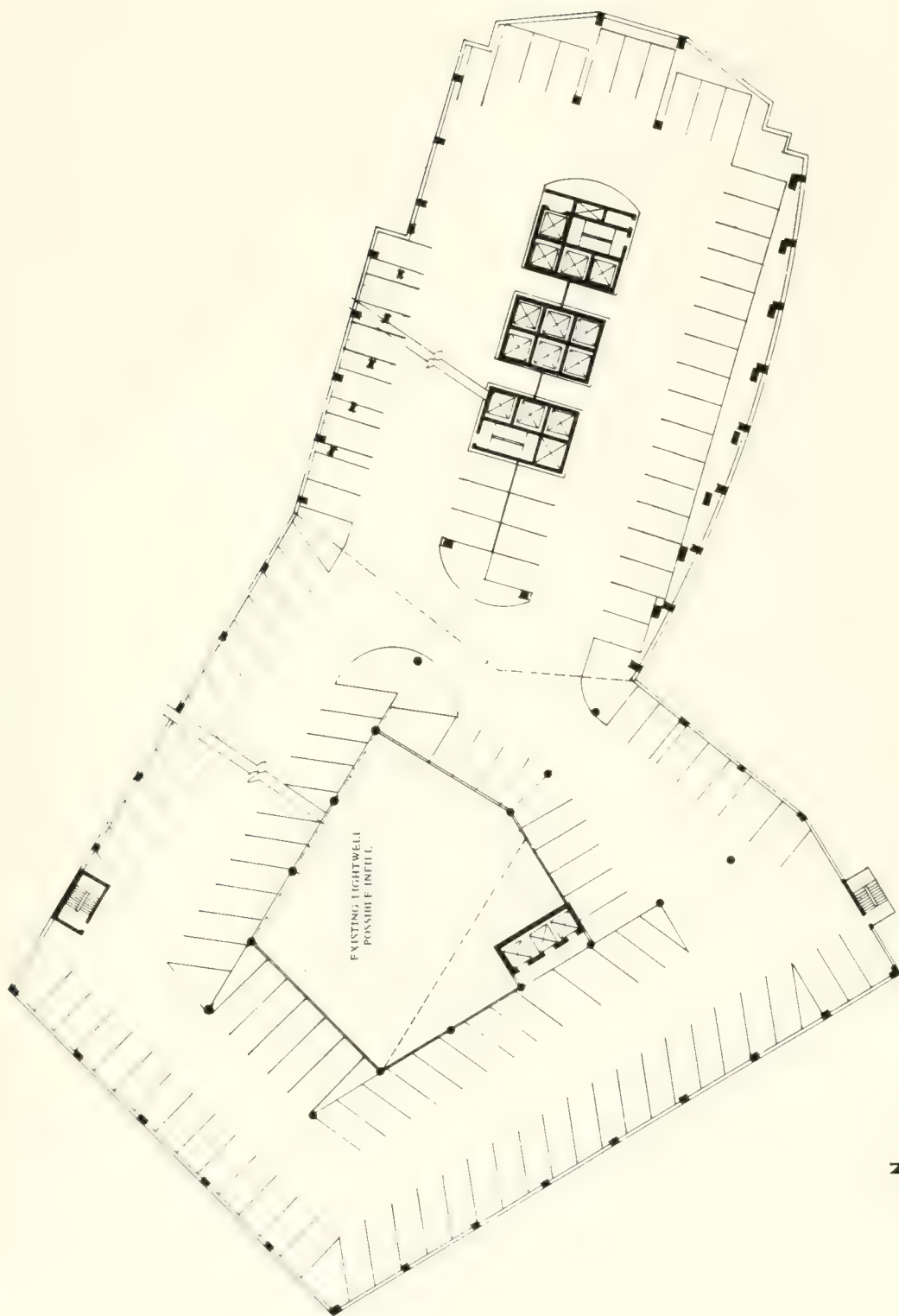
FORTY FRANKLIN

FIGURE V 3.13

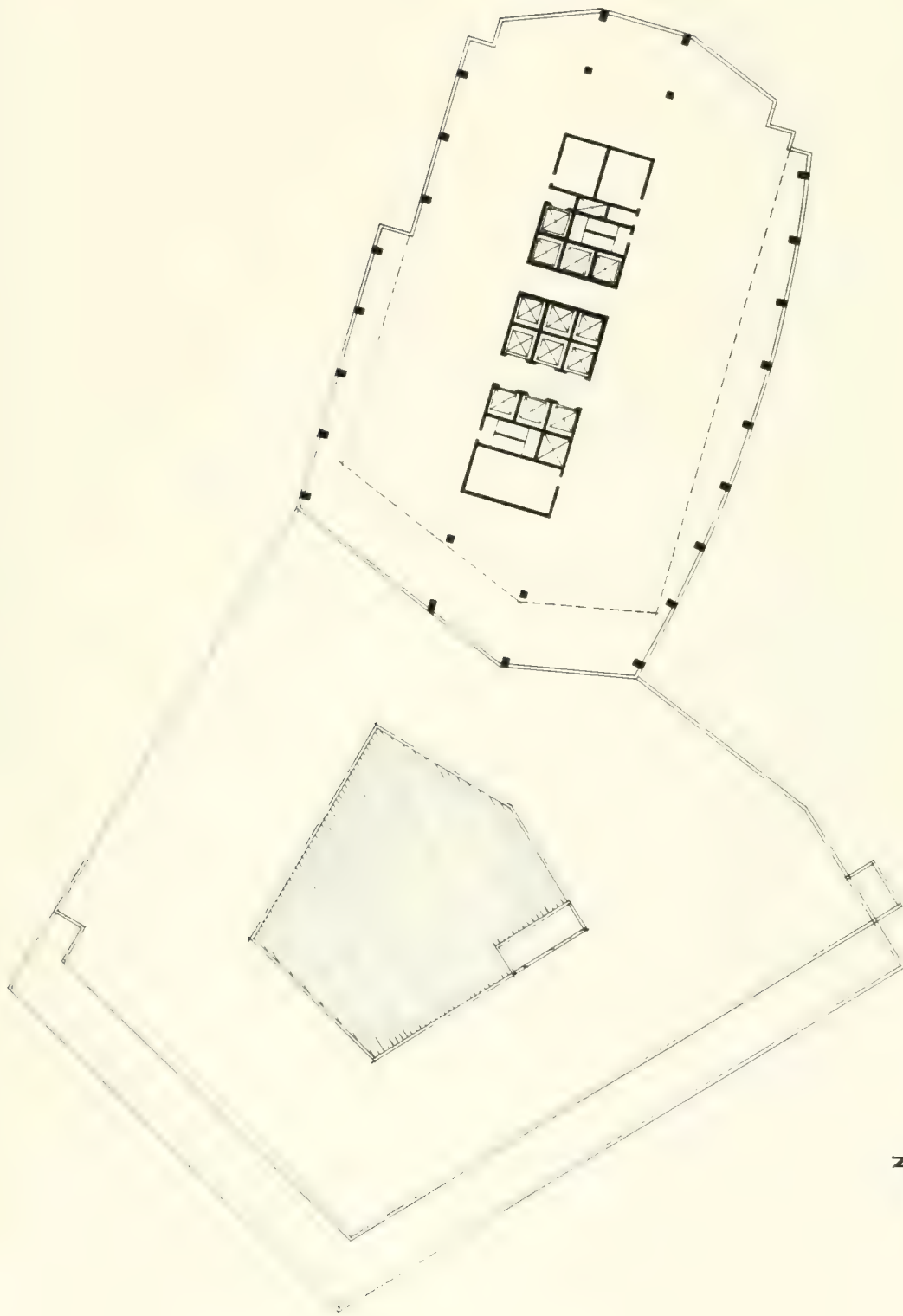


TYPICAL GARAGE RAMP PLAN





TYPICAL GARAGE FLOOR PLAN



TYPICAL LOWER FLOOR PLAN



OWNER, FRANK-KING ASSOCIATES L.P.

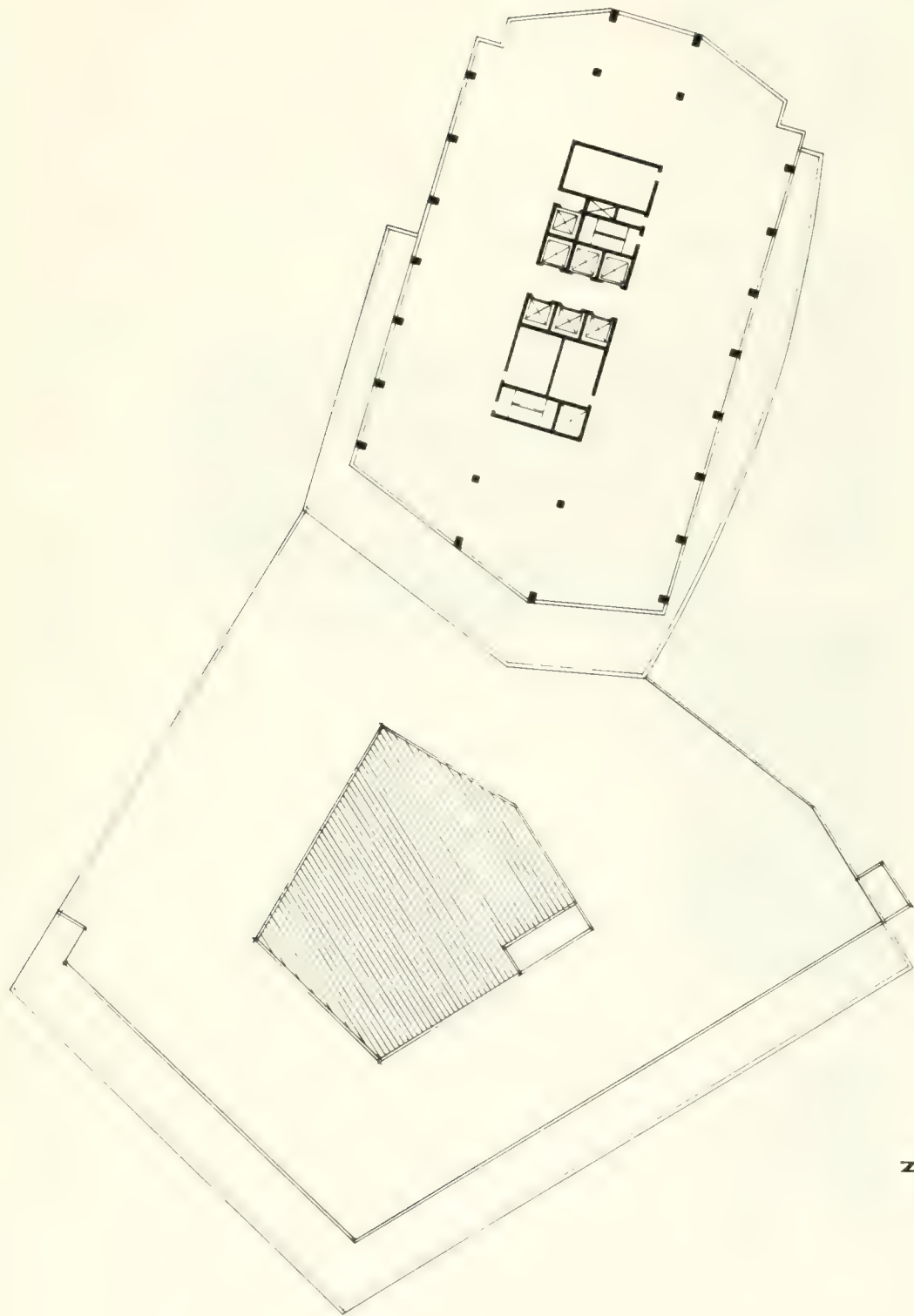
DEVELOPPER, OLD STATE MANAGEMENT CORP.

FORTY FRANKLIN

FIGURE V 3.17

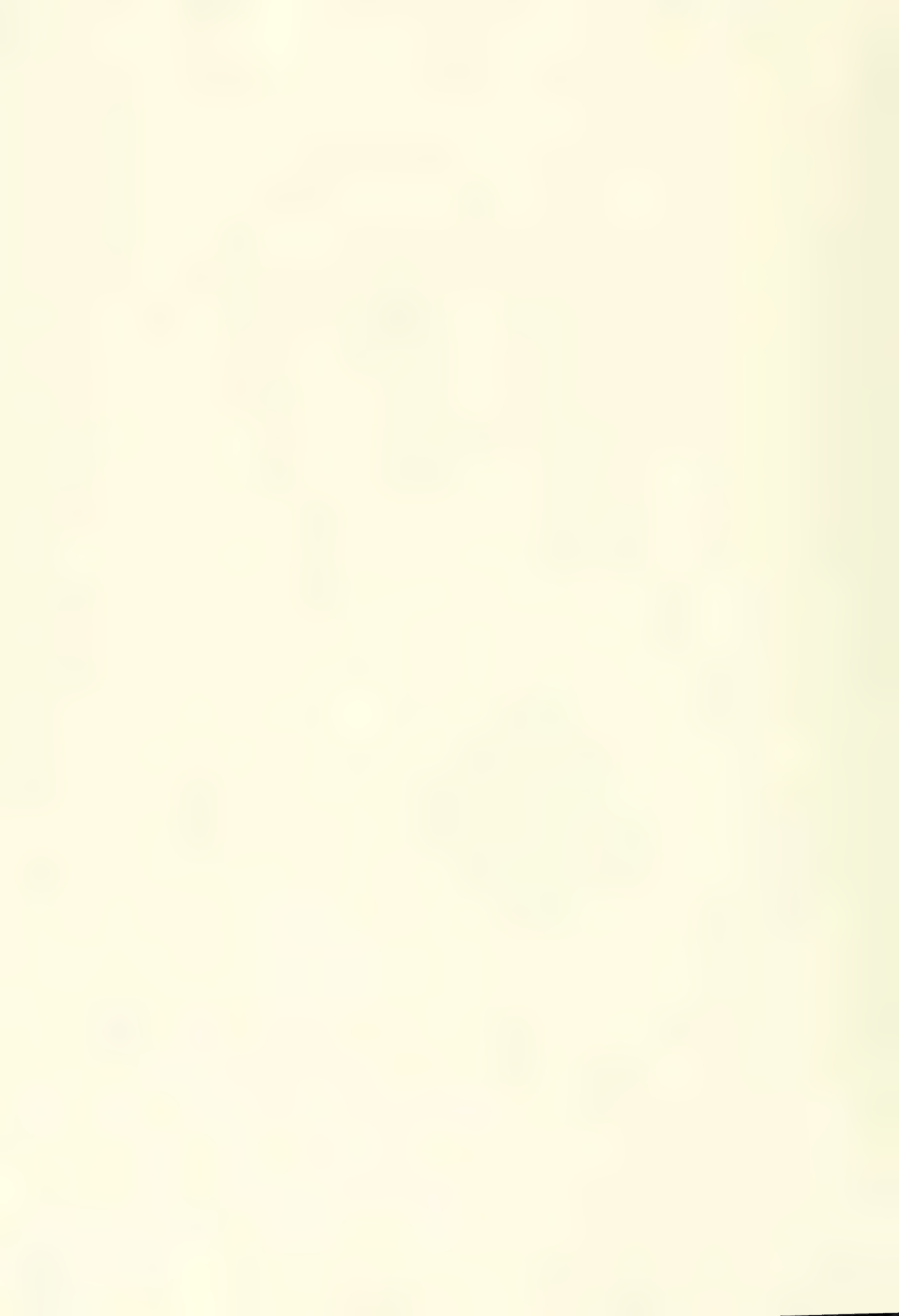
ARCHITECTS: CRANG AND BOAKE INC. & SHEPLEY, BULFINCH, RICHARDSON AND ABBOTT

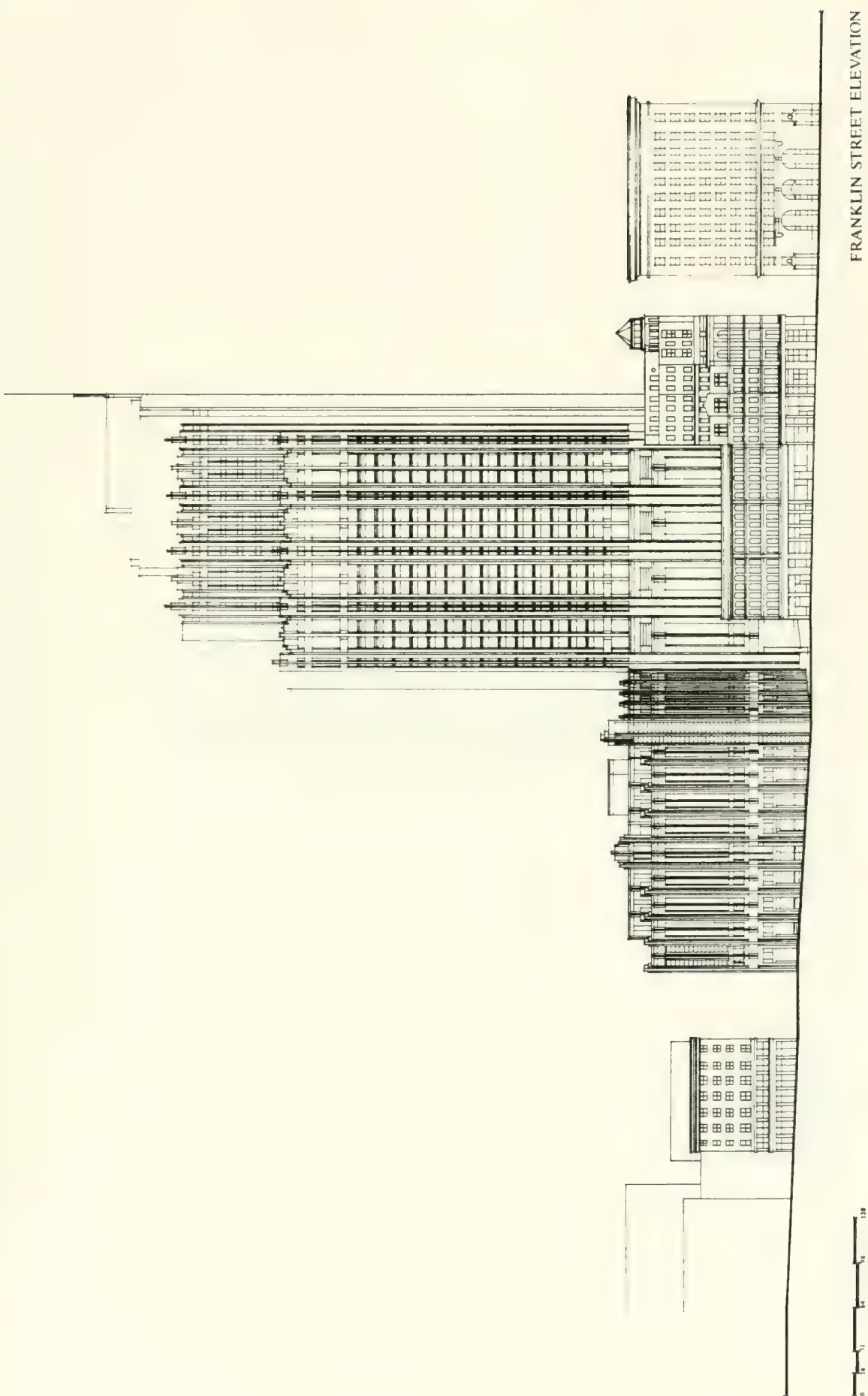




TYPICAL UPPER FLOOR PLAN







FRANKLIN STREET ELEVATION



OWNER: FRANK KING ASSOCIATES LP

DEVELOPER: OLD STATE MANAGEMENT CORP

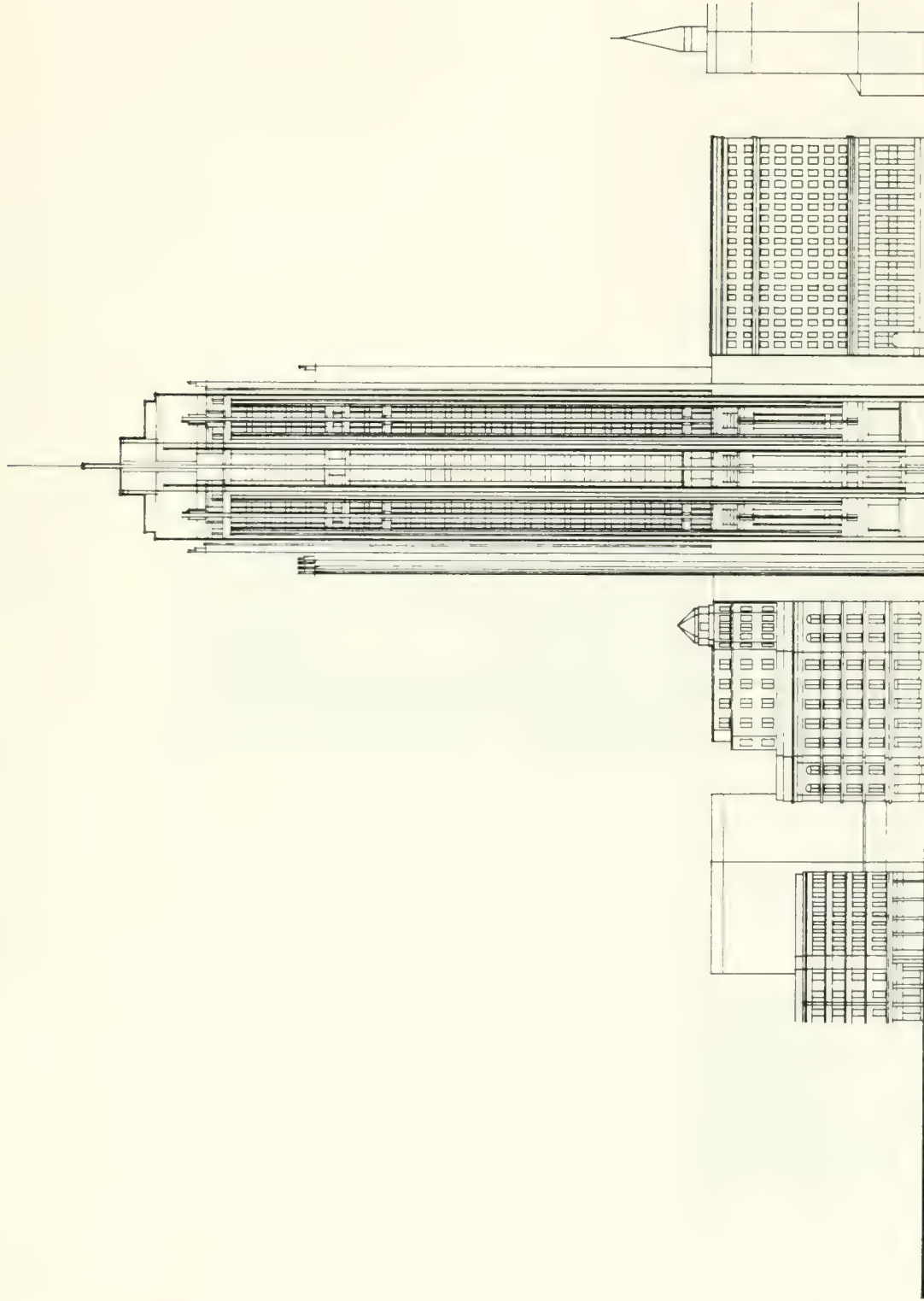
FORTY FRANKLIN

FIGURE V 3.19

ARCHITECTS: CRANG AND BOAKE INC. & SHEPLEY, BULFINCH, RICHARDSON AND ABBOTT







ARCH STREET ELEVATION

OWNER: FRANK KING ASSOCIATES L.P.

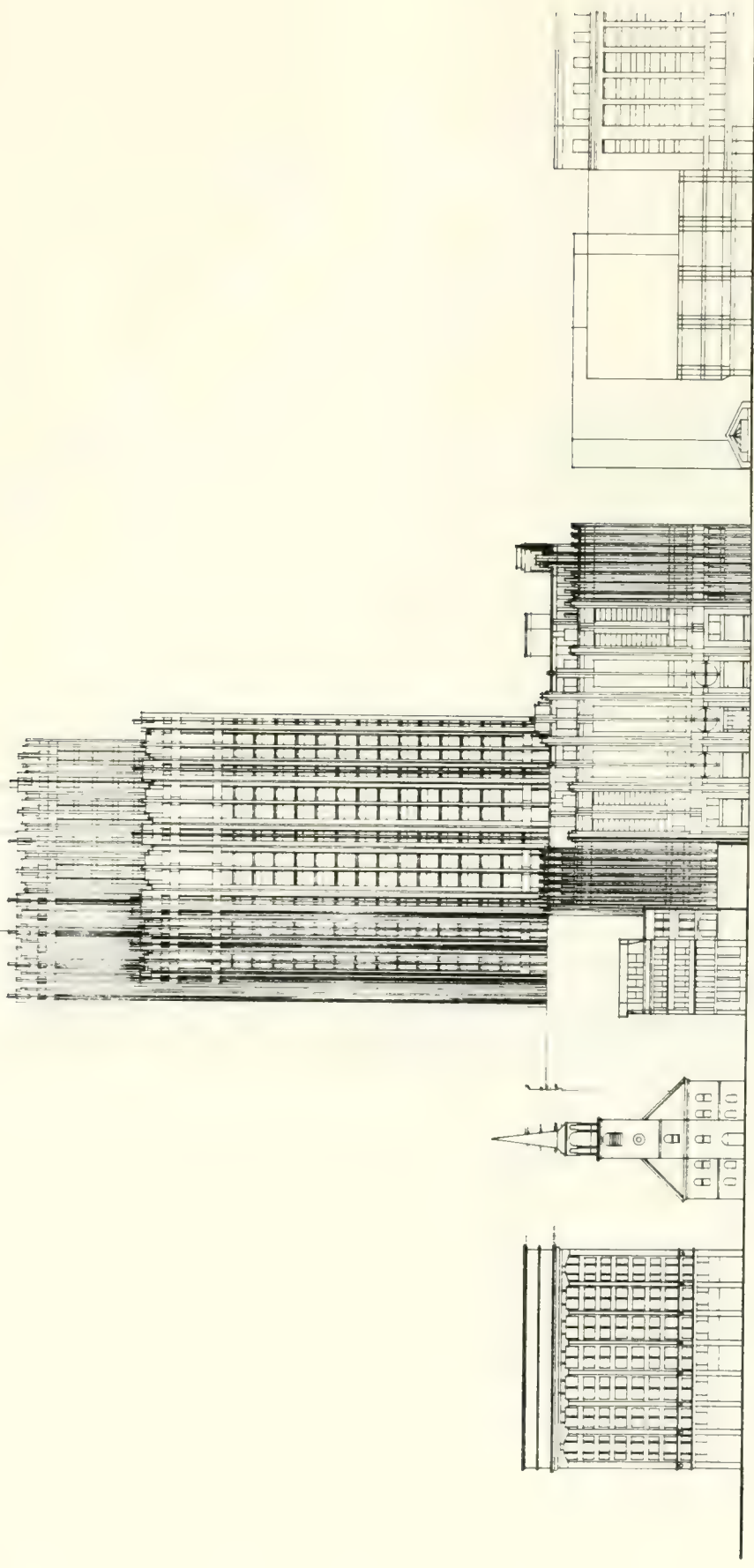
DEVELOPER: OLD STATE MANAGEMENT CORP.

FORTY FRANKLIN

FIGURE V 3.20

ARCHITECTS: CRANG AND BOAKE INC. & SHEPLEY, BULFINCH, RICHARDS, HARDSIN AND ABBOTT





WASHINGTON STREET ELEVATION



OWNER, FRANK-KING ASSOCIATES L.P.

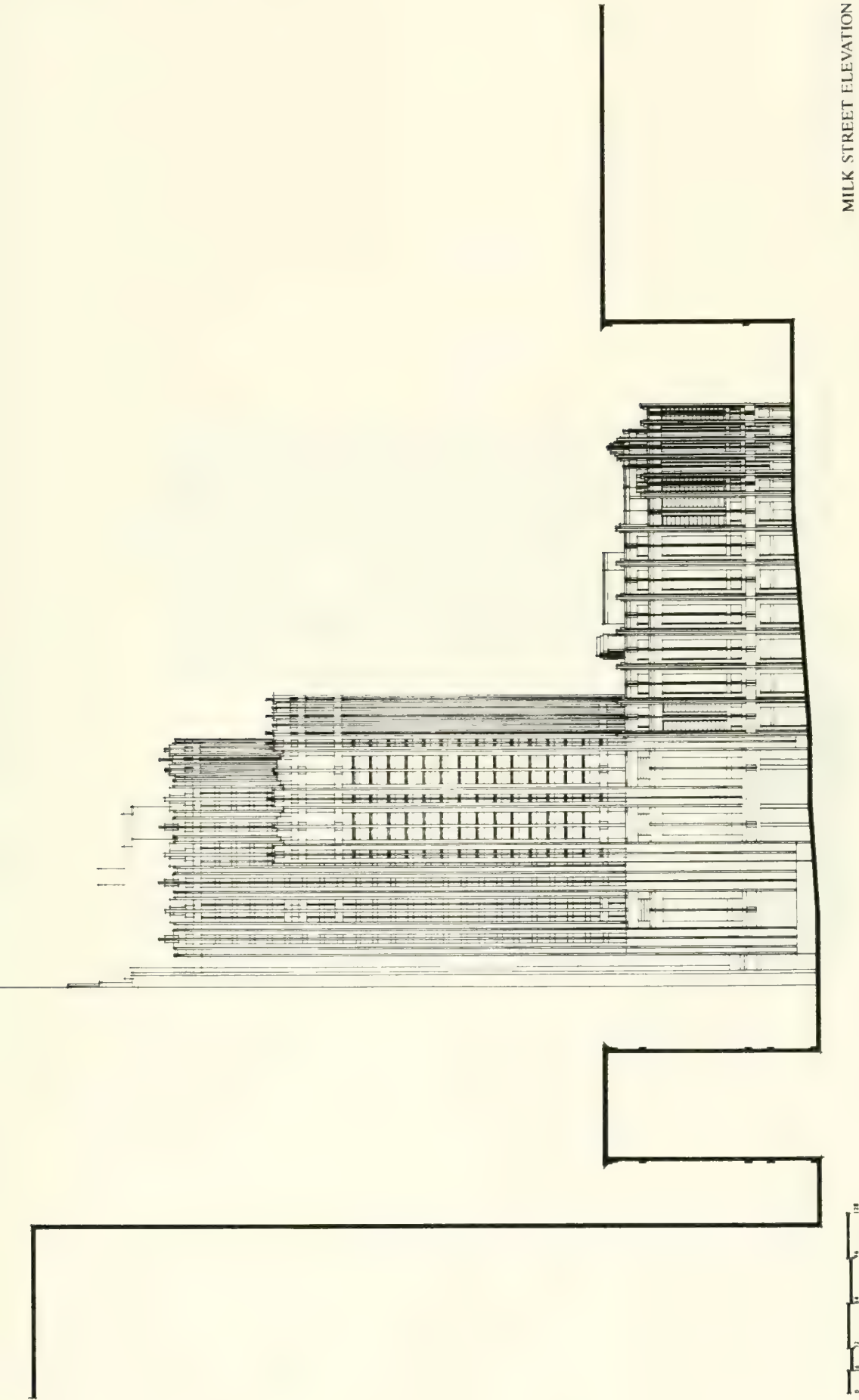
DEVELOPER, OLD STATE MANAGEMENT CORP.

FORTY FRANKLIN

FIGURE V 3.21

ARCHITECTS, CRANG AND ROAKE INC. & SHEPLEY, BULLFINCH, RICHARDSON AND ABBOTT





MILK STREET ELEVATION

FORTY FRANKLIN

FIGURE V 3.22

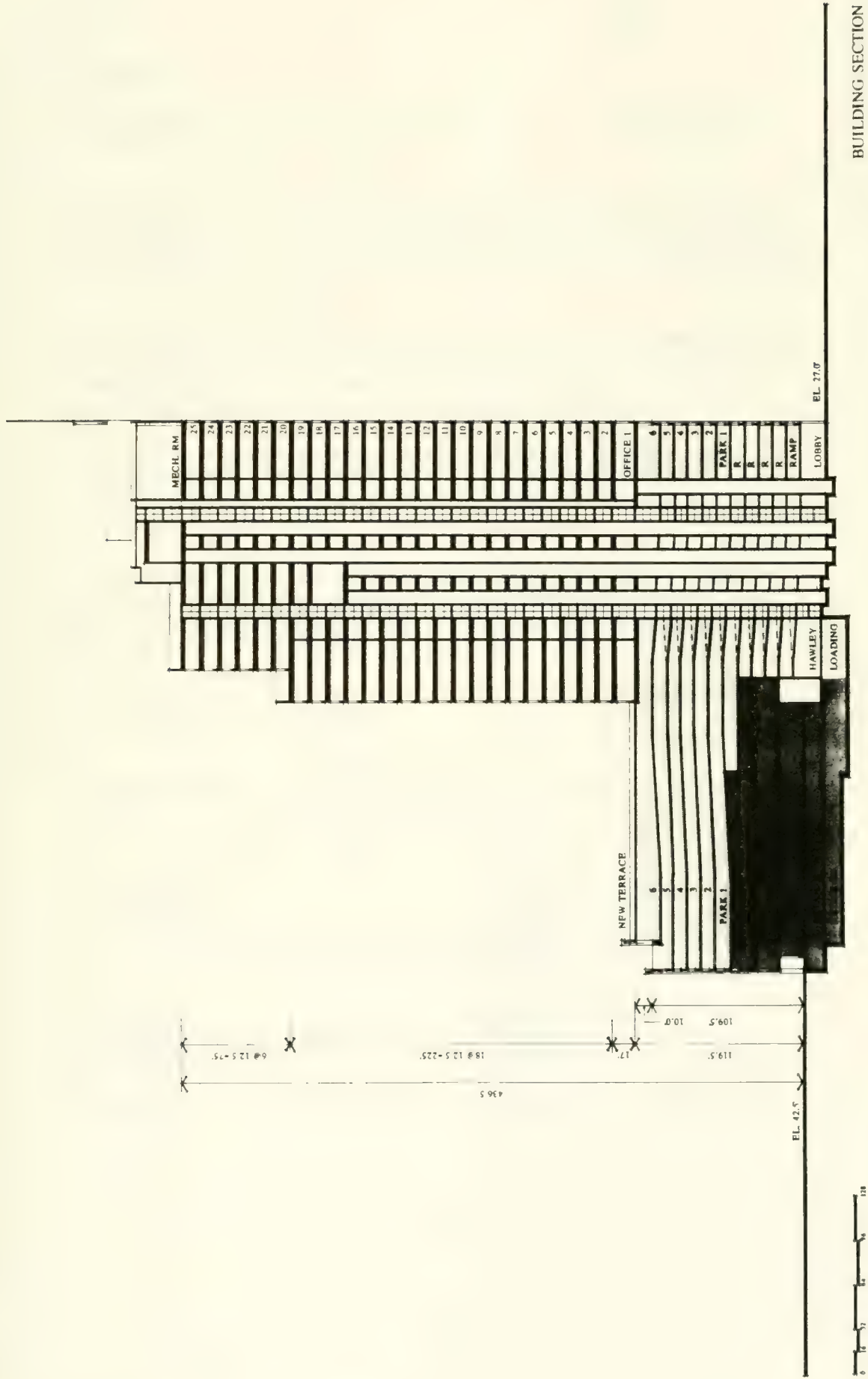


OWNER: FRANK KING ASSOCIATES L.P.

DEVELOPER: OLD STATE MANAGEMENT CORP.

ARCHITECTS: CRANG AND BOAKE INC. & SHEPLEY, BULFINCH, RICHARDSON AND ABBOTT





OWNER FRANK-KING ASSOCIATES L.P.

DEVELOPER OLD STATE MANAGEMENT CORP

FORTY FRANKLIN

ARCHITECTS CRANG AND BOAKE INC & SHEPLEY, RUFFIN, RICHARDSON AND ABBOTT

FIGURE V.3.23

3.2.3 Option B

The site for Option B consists of the site of the existing building. The area of this site is 58,819 s.f.

Option B is constrained by the current as-of-right (enhanced) zoning for the site which limits the floor area ratio to 10 and the height to 155 feet. Thus, this option simply adds three office floors to the top of the existing foot print.

This addition is set back approximately 20 feet from Washington and Franklin Streets, in line with the existing setback of the top parking level, in order to maintain the existing streetwall height.

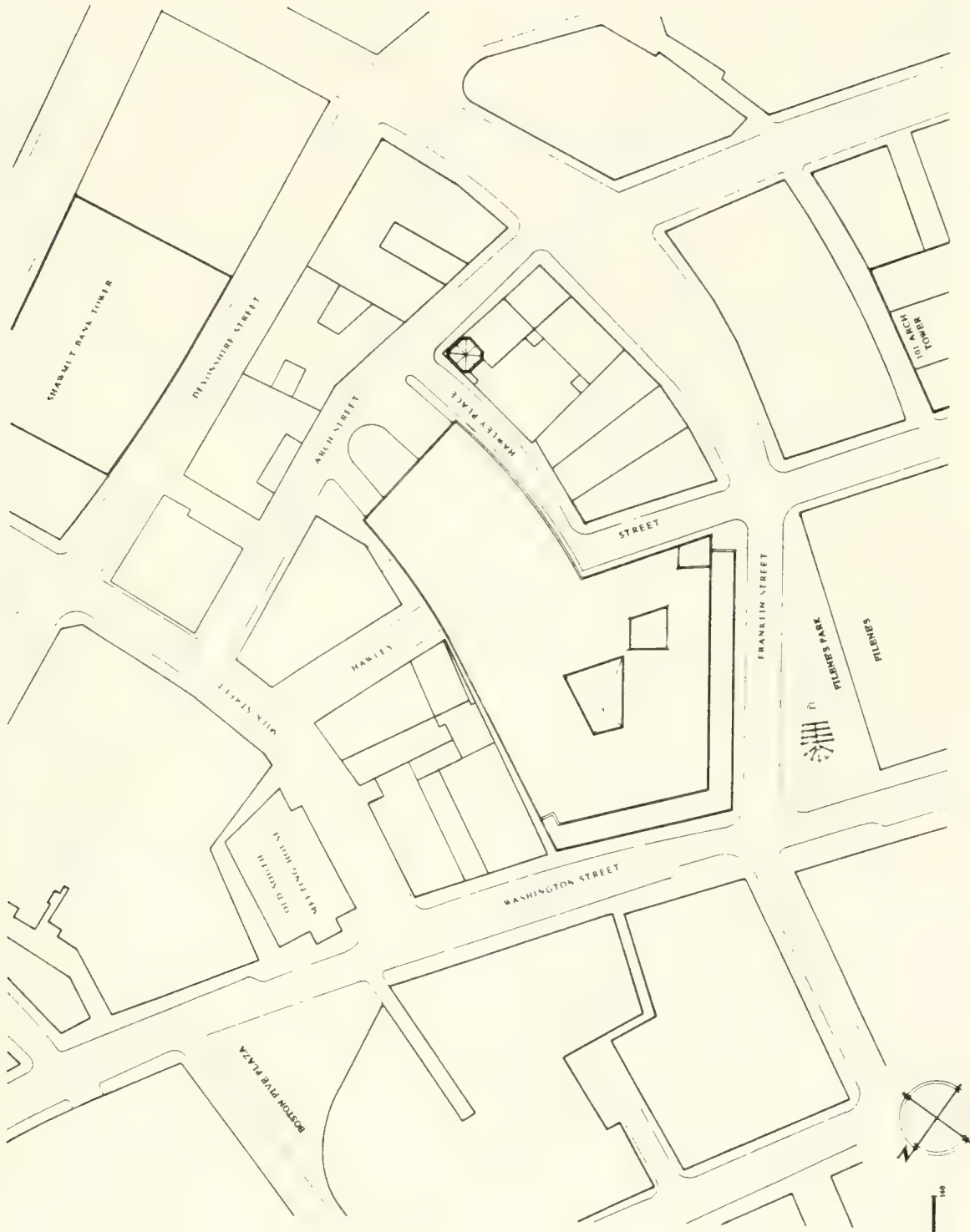
No changes are proposed for the existing building, except at the corner of Hawley and Franklin Streets where a new office building lobby and associated elevators will be located.

Exterior walls of the office building addition are shown as precast concrete, designed to be compatible with the existing exposed concrete detailing of the existing building.

Figures V.3.24 thru V.3.31 show the conceptual design drawings of Option B.

TABLE V.3.2
APPROXIMATE AREA TABULATION OF OPTION B

<u>FAR Gross - S.F</u>	
<u>A. Office</u>	
Lobby	2,100
Floors 1-3 3 @ 47,850=	<u>143,550</u>
Totals (rounded)	145,600
<u>B. Retail</u>	132,600
<u>C. Garage</u>	<u>335,100</u>
<u>D. Total</u>	613,300
<u>E. FAR</u>	10.4



SITE PLAN



OWNER: FRANK-KING ASSOCIATES LP

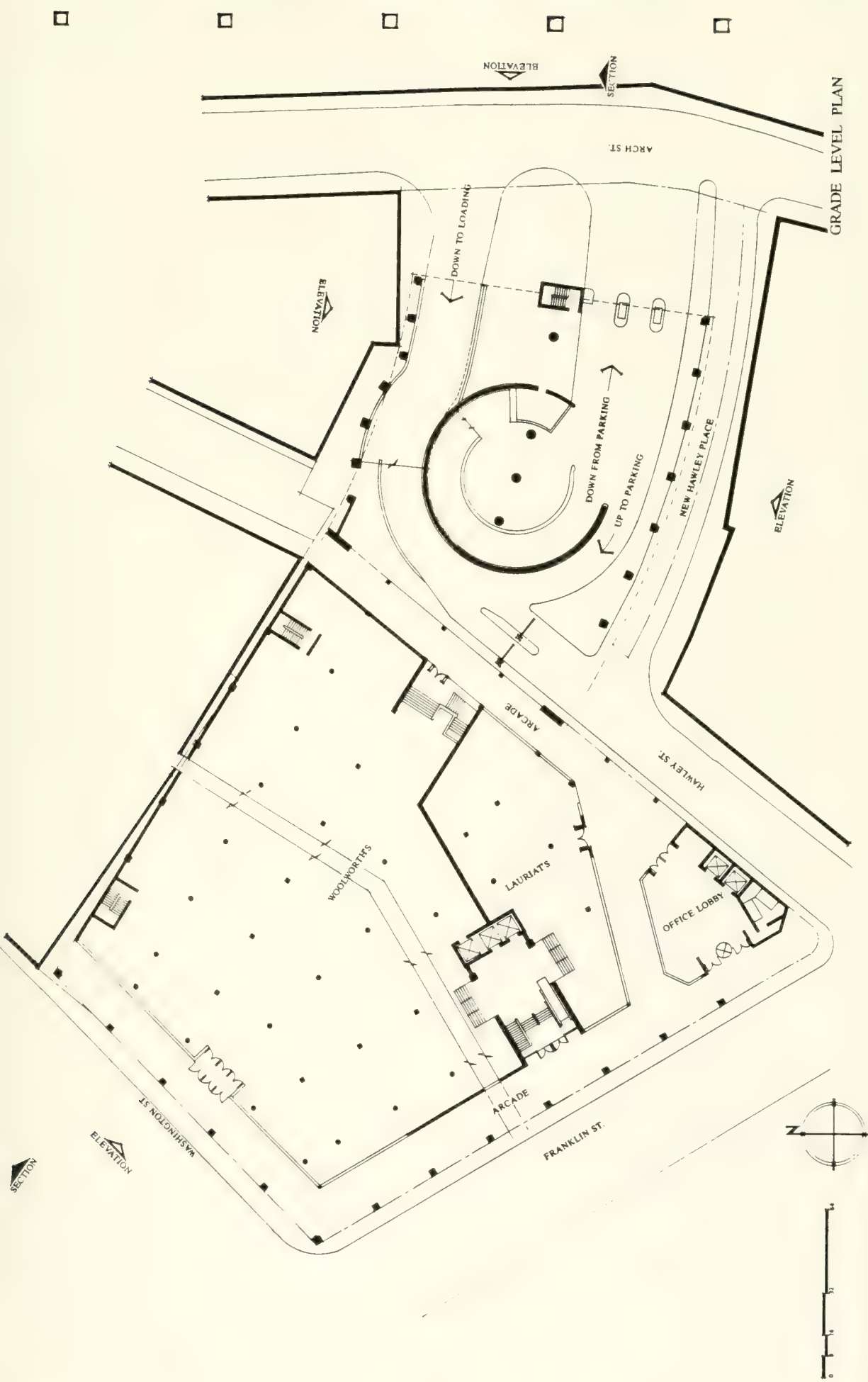
DEVELOPER: OLD STATE MANAGEMENT CORP.

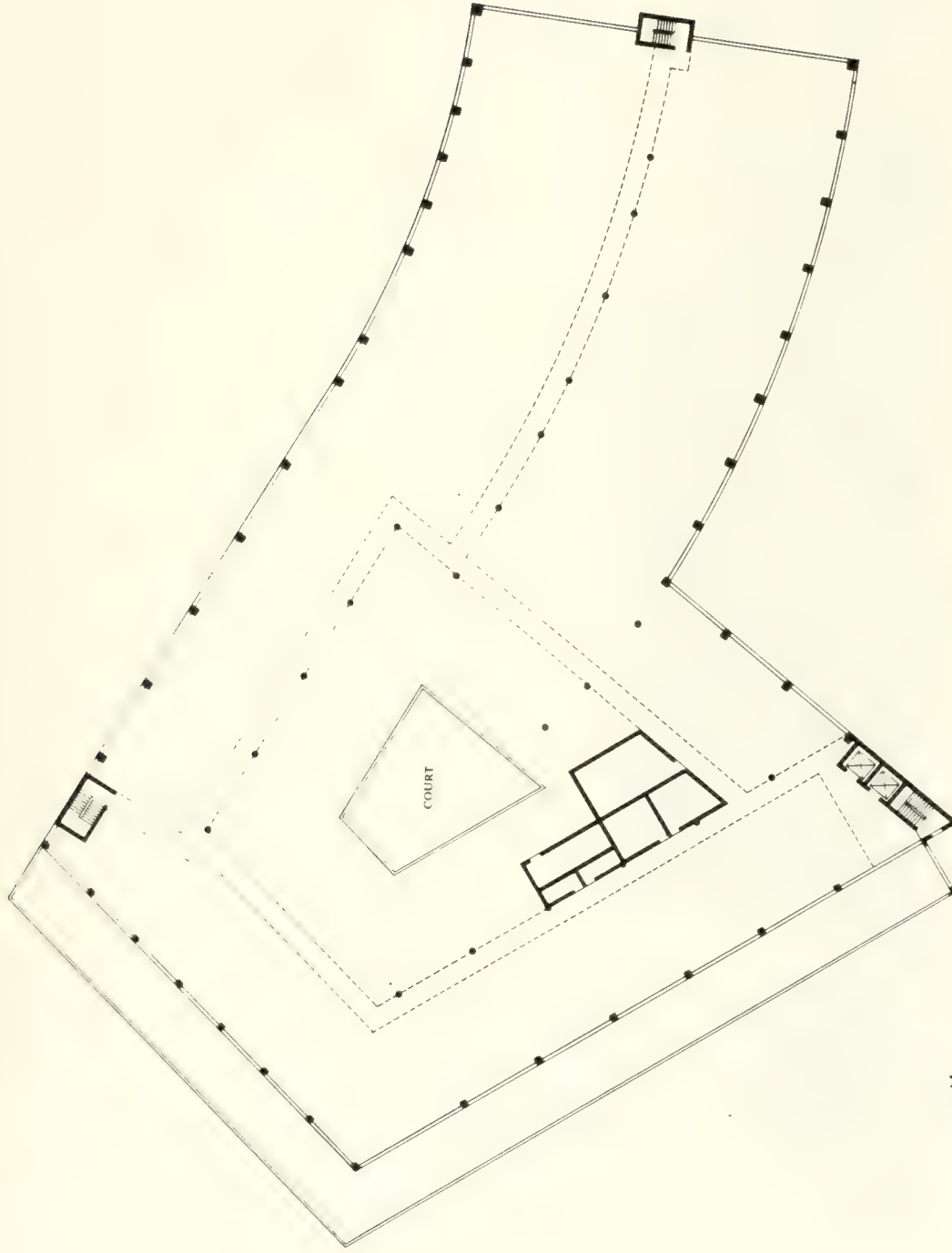
FORTY FRANKLIN

FIGURE V 3.24

ARCHITECTS CRANG AND BOAKE INC. & SHEPLEY, BULFINCH, RICHARDSON AND ABBOTT







TYPICAL OFFICE FLOOR PLAN



ARCHITECTS CRANG AND ROAKE INC. & SHEPLEY, RUIFENGLI, RICHARDSON AND ABBOTT

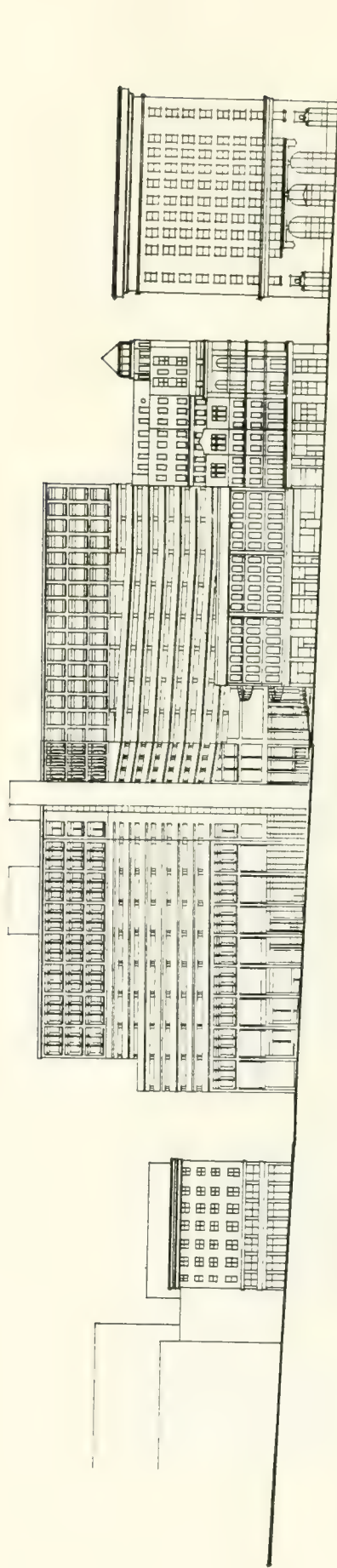
FORTY FRANKLIN

FIGURE V 3.26

DEVELOPER: OLD STATE MANAGEMENT CORP

OWNER: FRANK-KING ASSOCIATES L.P





FRANKLIN STREET ELEVATION

FORTY FRANKLIN

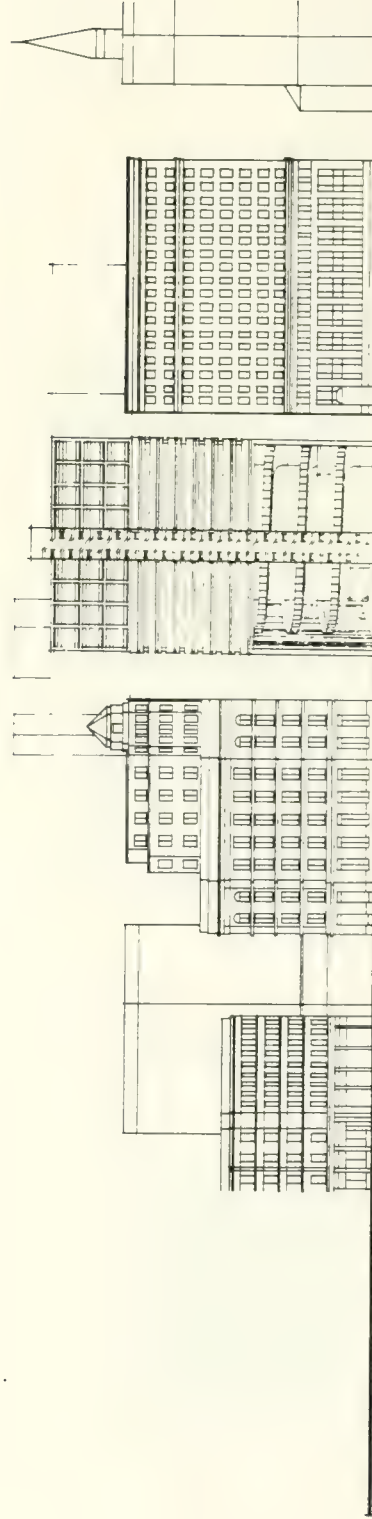
DEVELOPER: OLD STATE MANAGEMENT CORP

OWNER: FRANK KING ASSOCIATES L.P.

ARCHITECTS: CRANG AND BOAKE INC. & SHEPLEY, RUTENFELT, RICHARDSON AND ARBOTT

FIGURE V 3.27

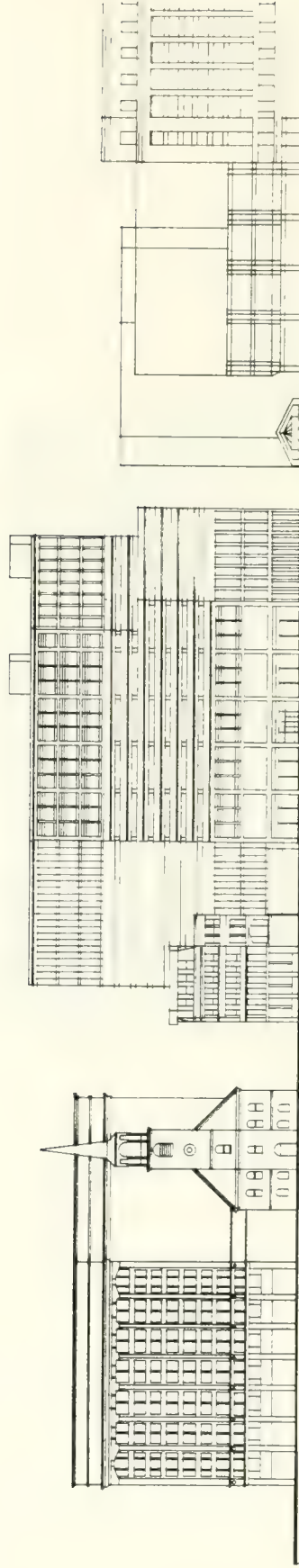




ARCH STREET ELEVATION

FORTY FRANKLIN

FIGURE V 3.28



0 16 32 64 128

WASHINGTON STREET ELEVATION



OWNER: FRANK-KING ASSOCIATES L.P.

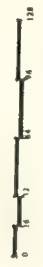
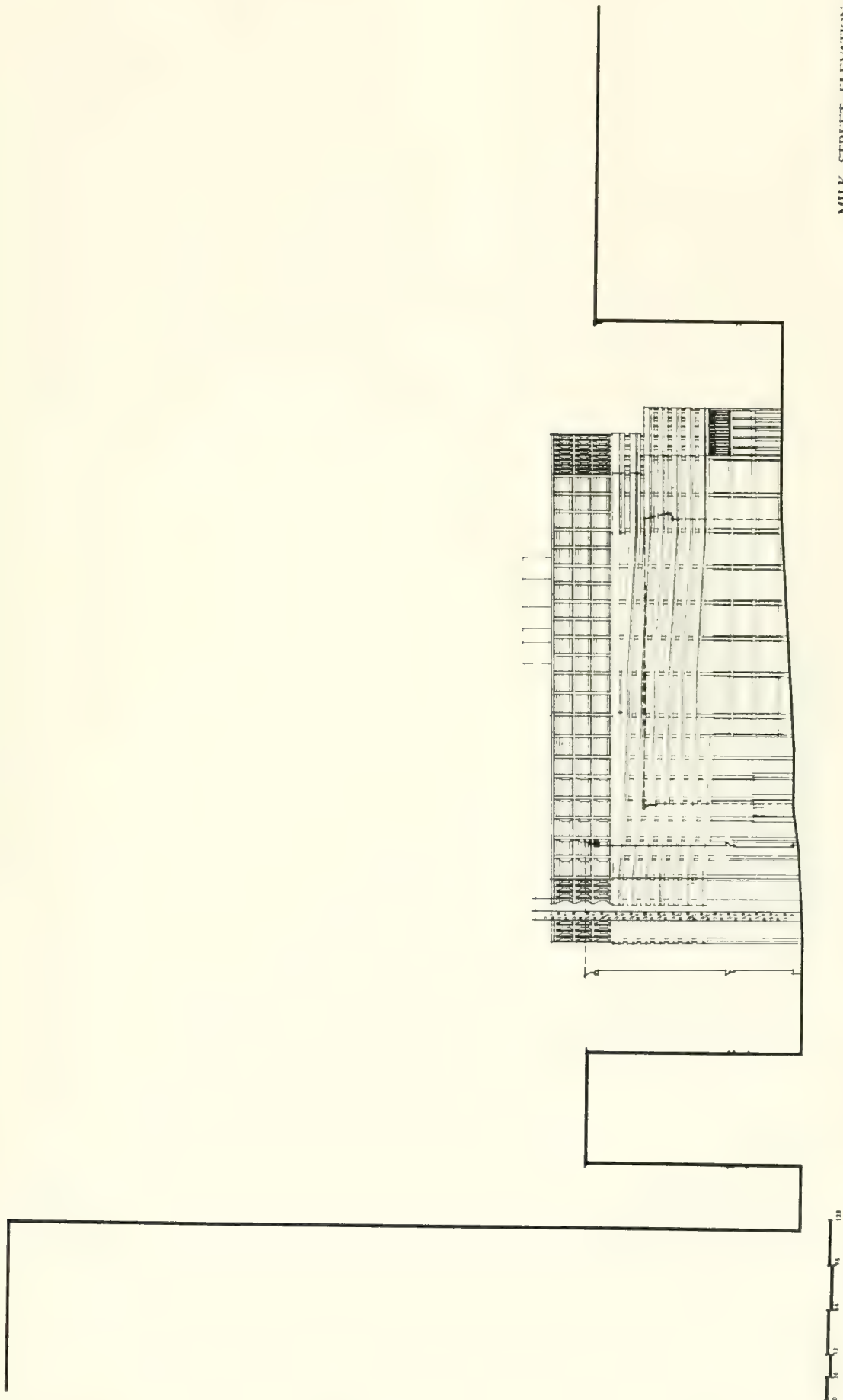
DEVELOPER: OLD STATE MANAGEMENT CORP.

FORTY FRANKLIN

FIGURE V 3.29

ARCHITECTS: CRANG AND BOAKE INC. & SHEPLEY, RULF INCIL, RICHARDSON AND ABBOTT





MILK STREET ELEVATION



OWNER, FRANK-KING ASSOCIATES L.P.

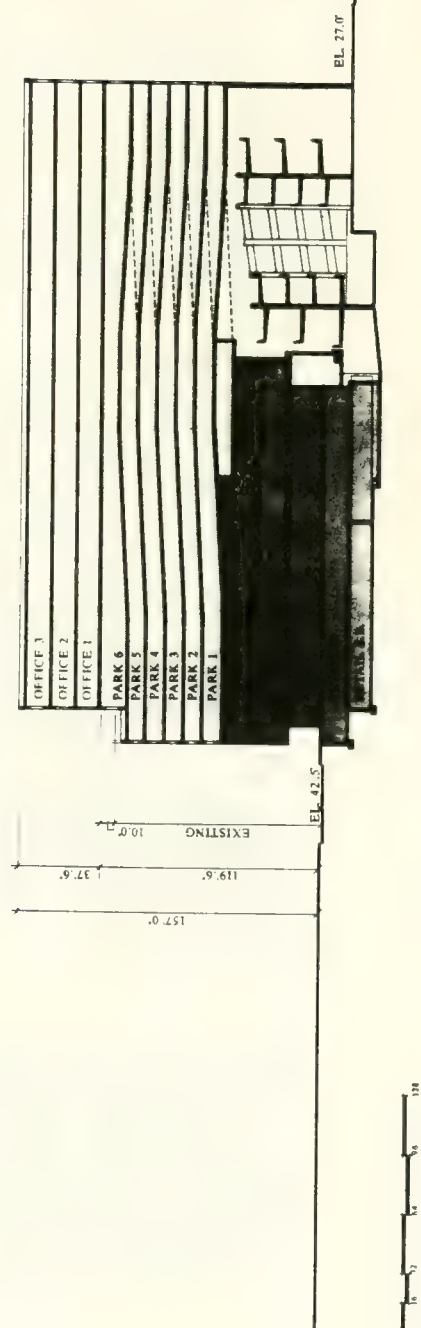
DEVELOPER, OLD STATE MANAGEMENT CORP

FORTY FRANKLIN

FIGURE V 3.30



ARCHITECTS, CRANG AND ROAKE INC. & SIEPLEY, HULEINE II, RICHARDSON AND AHROTT



OWNER: FRANK-KING ASSOCIATES L.P.

DEVELOPER: OLD STATE MANAGEMENT CORP

FORTY FRANKLIN

FIGURE V 3.31

ARCHITECTS: CRANO AND BOAKE INC. & SHEPLEY, RUIFINCH, RICHARDSON AND ABBOTT



3.2.4 Option C

The site for Option C is the same as that for Option A. The total site area is 63,920 s.f.

Option C is a design that is in substantial conformance with the PDA zoning requirements for the site, Included in these requirements is a maximum FAR of 16 and a maximum height of 350 feet to the floor of the highest occupied level. These zoning requirements limit the office tower to approximately 468,700 FAR gross square feet. Financial resources are not available for the renovation of the existing Woolworth's and garage portion of the project. Consequently, while the overall site planning approach for Option C is similar to Option A, the architectural execution is significantly different.

Since the existing building will remain essentially unchanged, the new office building is treated as a simple mass with a major horizontal articulation to relate it the dominant horizontal bands of the existing parking garage.

The office tower floorplate is set at about 22,500 s.f. and is unchanged for its entire height in order to produce the greatest area within the allowable zoning constraints. The massing concept for the addition relates it to the existing street pattern. The ends of the office addition are configured to relate it it Arch and Washington Streets. The long wall on New Hawley Place follows the property line which also relates it to the curve of Franklin Street while the opposite exterior wall is oriented to relate to the splay of Milk Street.

The horizontal treatment of the facade is articulated at the corners by projecting bay windows which define corners and also serve as a device to resolve the somewhat awkward "overlapping" of the office addition over the lower existing base portion. Major exterior materials of the office addition will be limestone or precast concrete in order to achieve an appropriate relationship to the exposed concrete of the existing building.

The Option C plan adds a pedestrian route from Arch to Hawley Street via the new office building lobby in a similar way as shown by Option A. Although Hawley Street will be visually reconnected, it will not be reopened to public traffic. Traffic on Arch Street will be reduced, and the new building will fill the existing "gap" on Arch Street, thus strengthening and revitalizing that street as an important part of the Financial District.

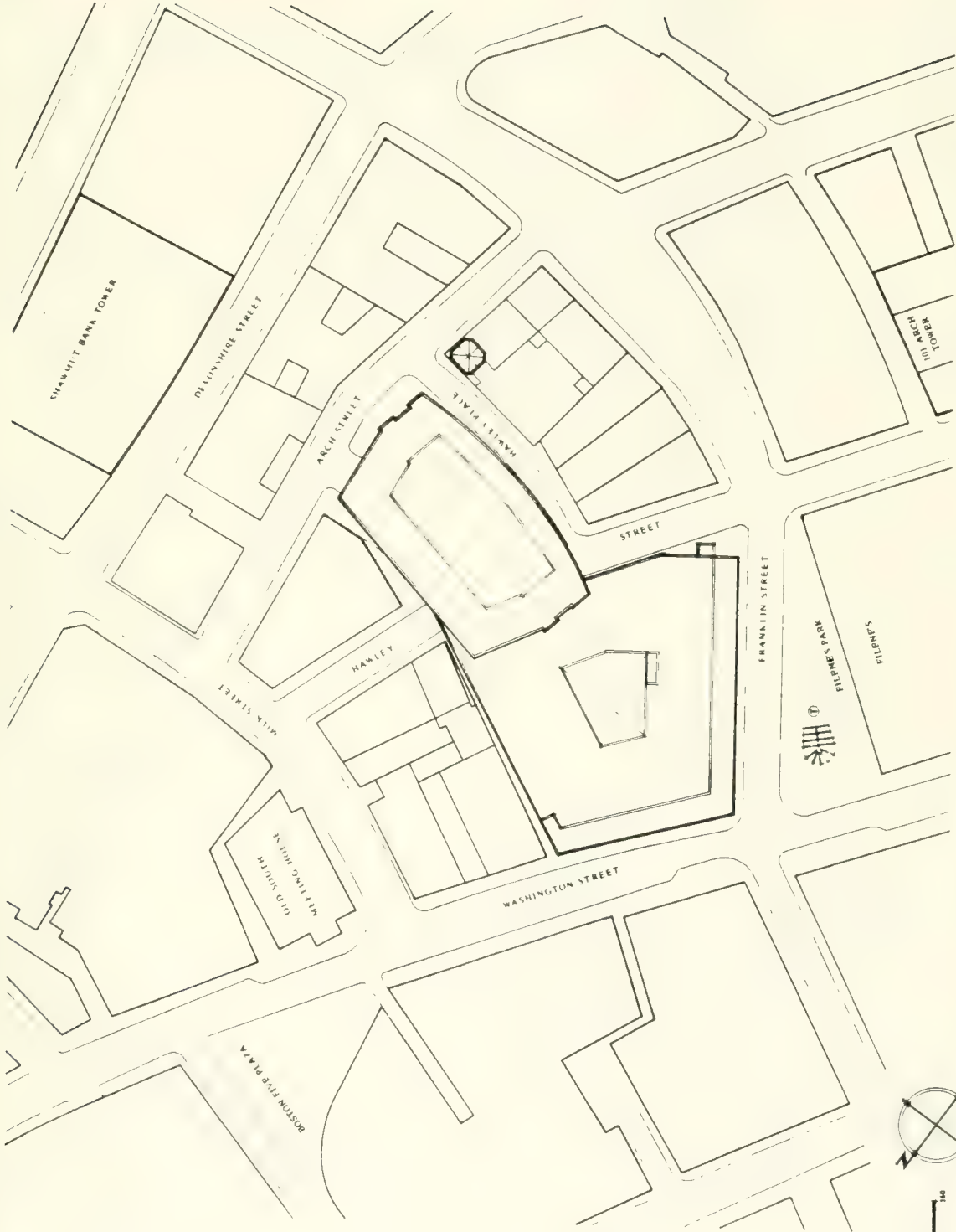
Ground-floor planning of the office building is similar to Option A, as are revisions to the garage entrances and ramp system.

The building's height of 361.5 feet, as measured from Washington Street, the FAR of 15.7 and the average tower floorplate area of 22,470 s.f. are in substantial accordance with PDA zoning for the site.

TABLE V.3.3
APPROXIMATE AREA TABULATION OF OPTION C

	<u>FAR Gross - S.F.</u>
<u>A. Office</u>	
Lobby	11,470
Transfer	53,460
Floors 2-19	8 @ 22,430= 403,740
Totals (rounded)	468,700
<u>B. Retail</u>	134,700
<u>C. Garage</u>	401,300
<u>D. Total</u>	1,004,700
<u>E. FAR</u>	15.7

Figures V.3.32 through V.3.43 illustrate the design.



SITE PLAN



OWNER: FRANK-KING ASSOCIATES L.P.

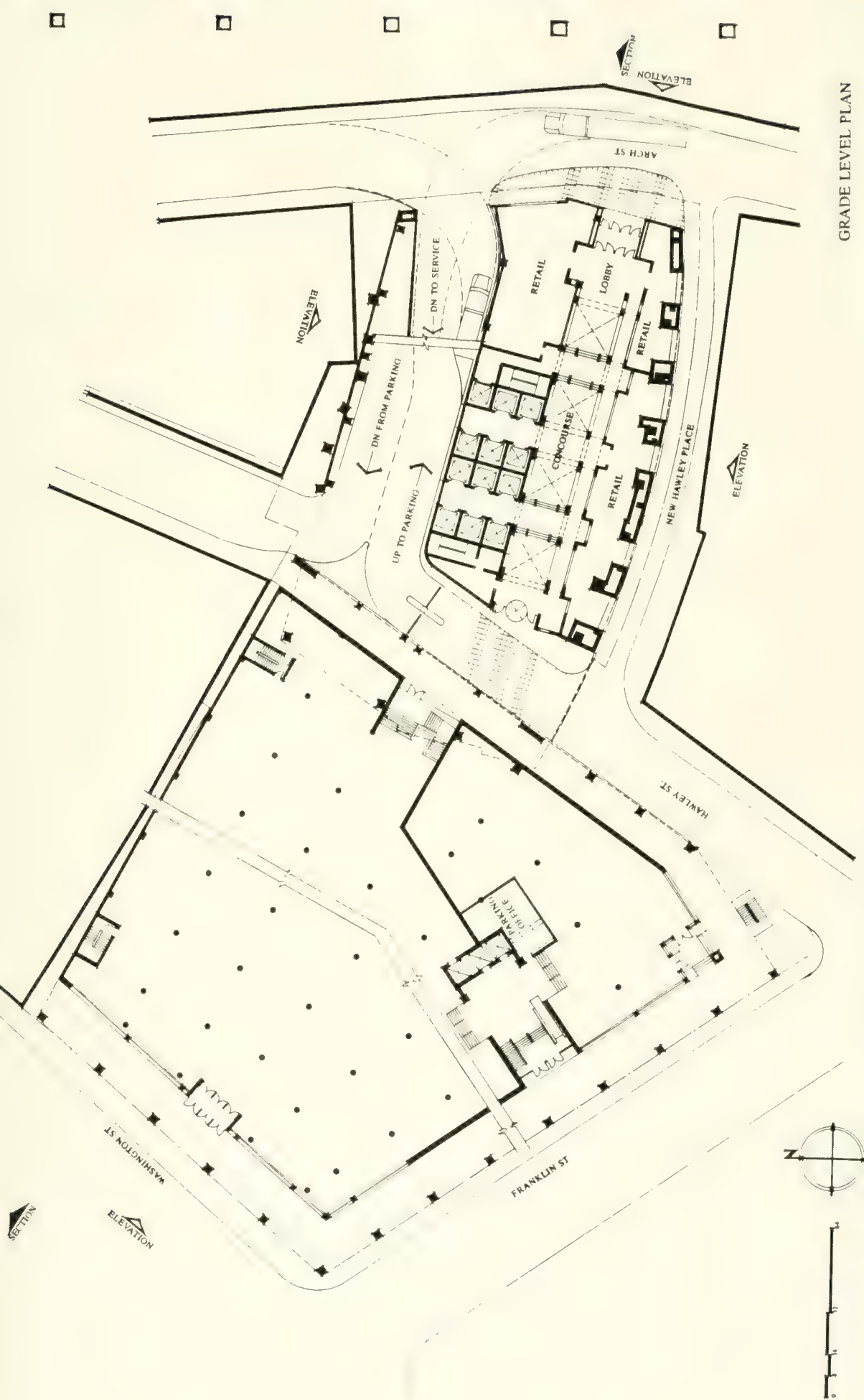
DEVELOPER: OLD STATE MANAGEMENT CORP.

FORTY FRANKLIN

FIGURE V 3.32

ARCHITECTS: CRANG AND BOAKE INC. & SHEPLEY, BULFINCH, RICHARDSON AND ABBOTT





GRADE LEVEL PLAN

FORTY FRANKLIN

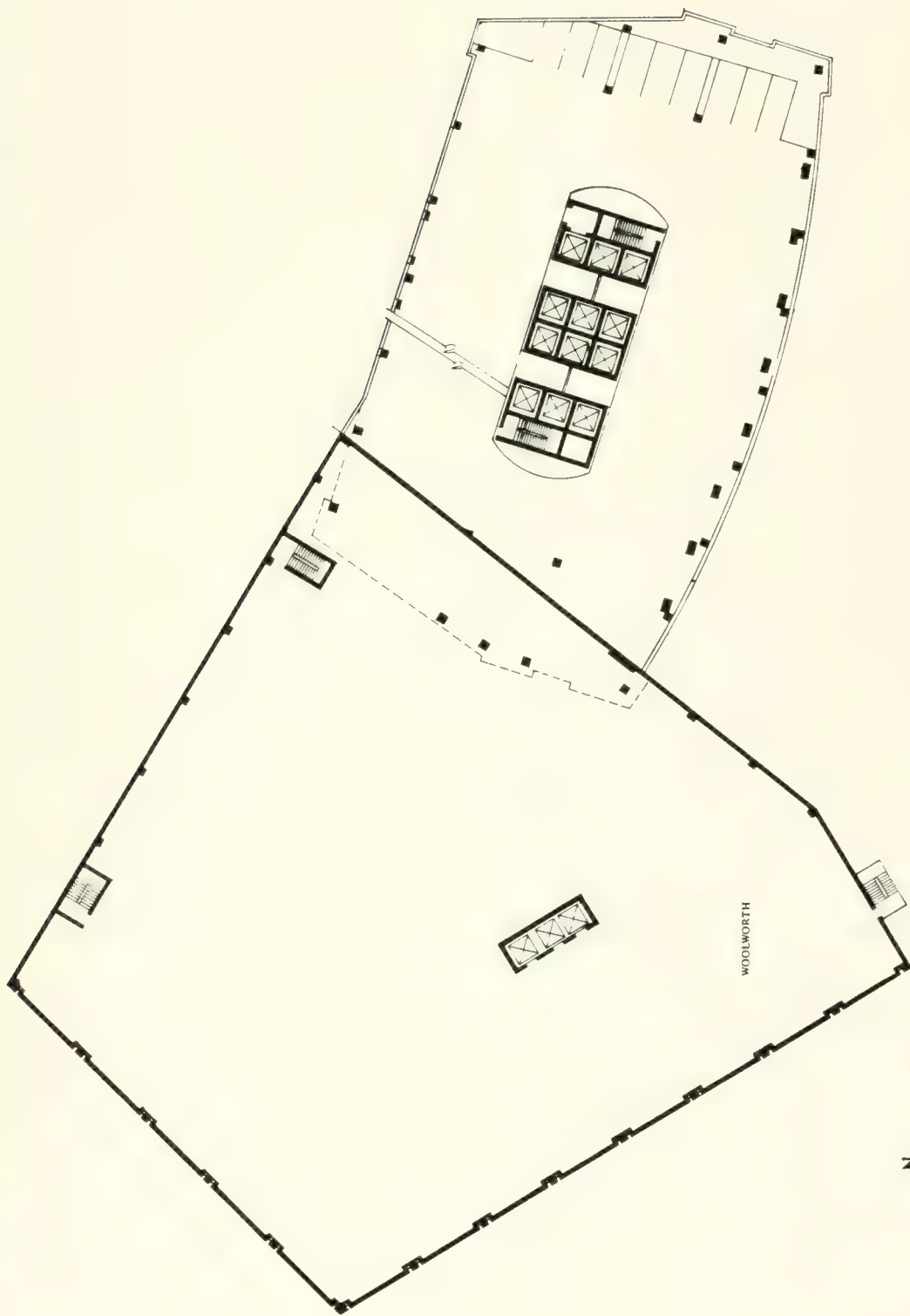
FIGURE V 3.33

OWNER: FRANK KING ASSOCIATES LP

DEVELOPER: OLD STATE MANAGEMENT CORP

ARCHITECTS: CRANG AND BOAKE INC. ■ SHEPLEY, BULFINCH, RICHARDSON AND ABBOTT





TYPICAL GARAGE RAMP PLAN

FORTY FRANKLIN

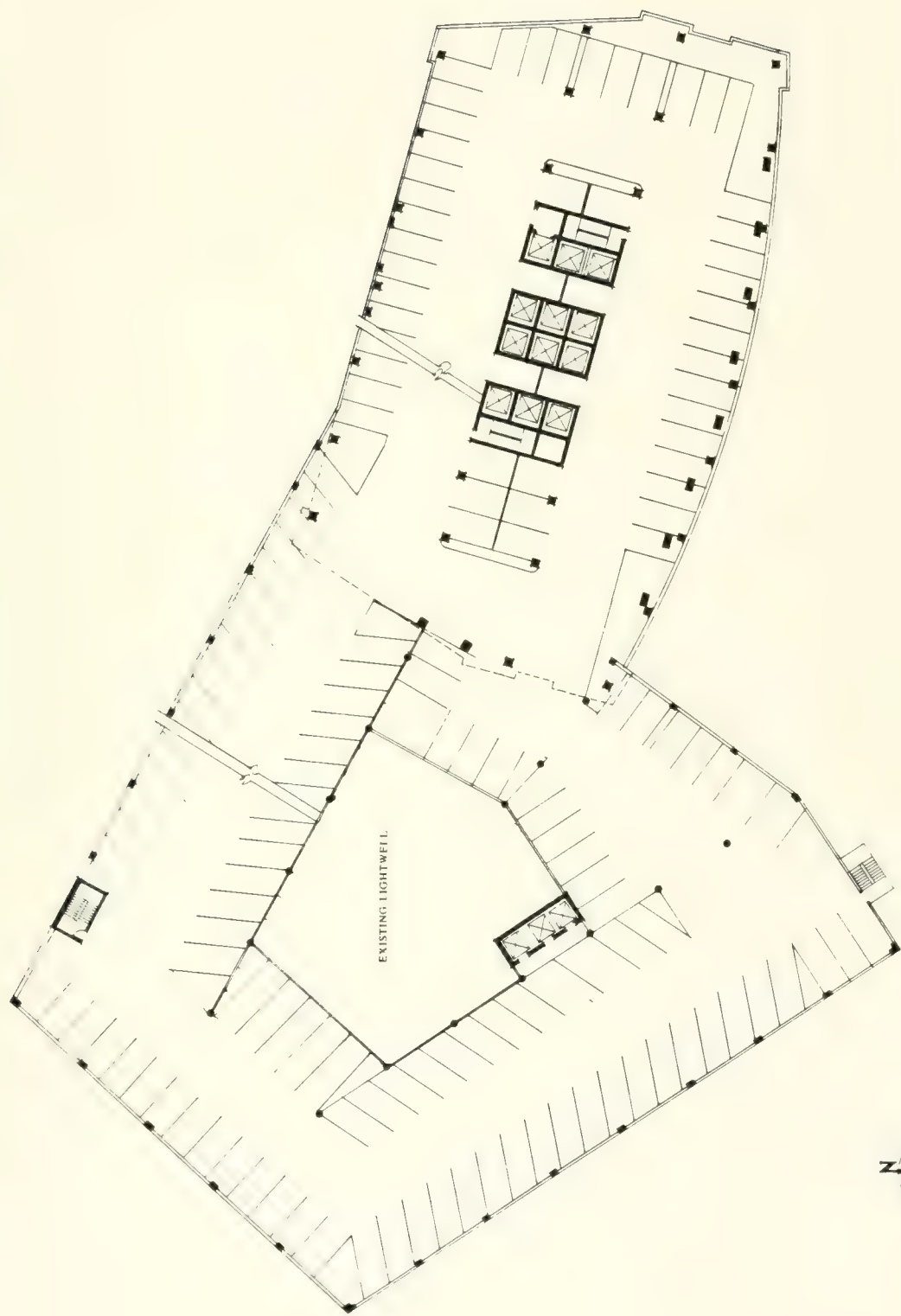
FIGURE V 3.34

OWNER FRANK KING ASSOCIATES LP

DEVELOPER OLD STATE MANAGEMENT CORP

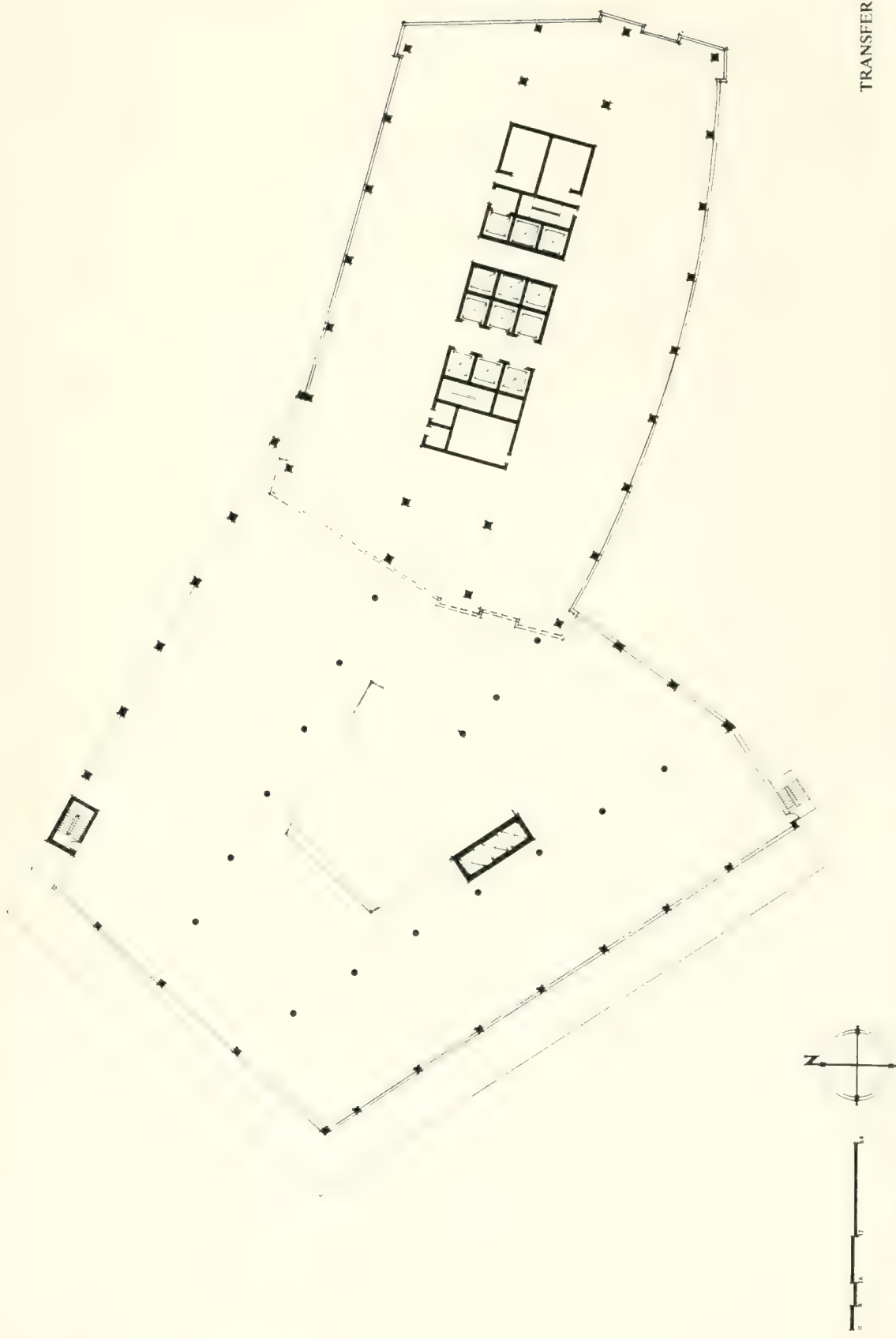
ARCHITECTS CRANG AND BOAKE INC. ■ SHEPLEY, BULFINCH, RICHARDSON AND ABBOTT





TYPICAL GARAGE FLOOR PLAN





TRANSFER FLOOR PLAN



OWNER FRANK KING ASSOCIATES L P

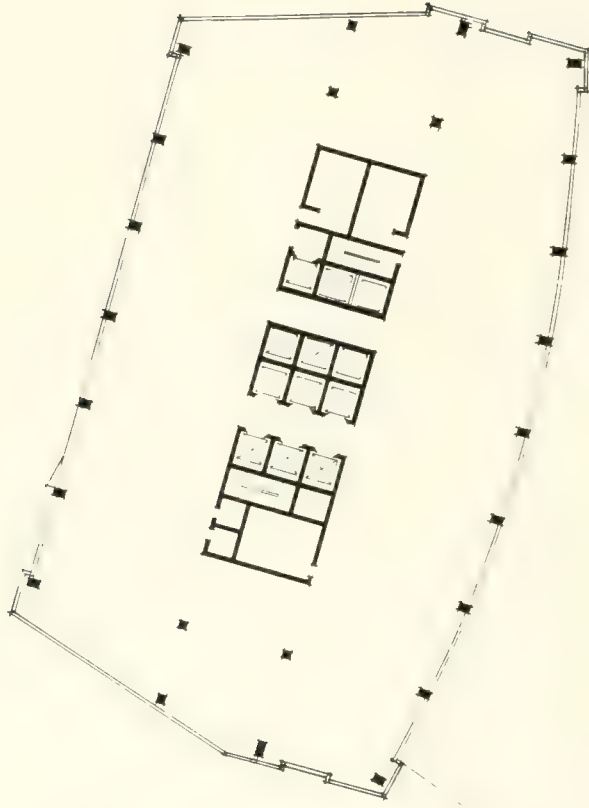
DEVELOPER OLD STATE MANAGEMENT CORP

FORTY FRANKLIN

FIGURE V 3.36

ARCHITECTS CRANG AND BOAKE INC. ▲ SHEPLEY, BULFINCH, RICHARDSON AND ABBOTT





TYPICAL LOWER FLOOR PLAN

FORTY FRANKLIN

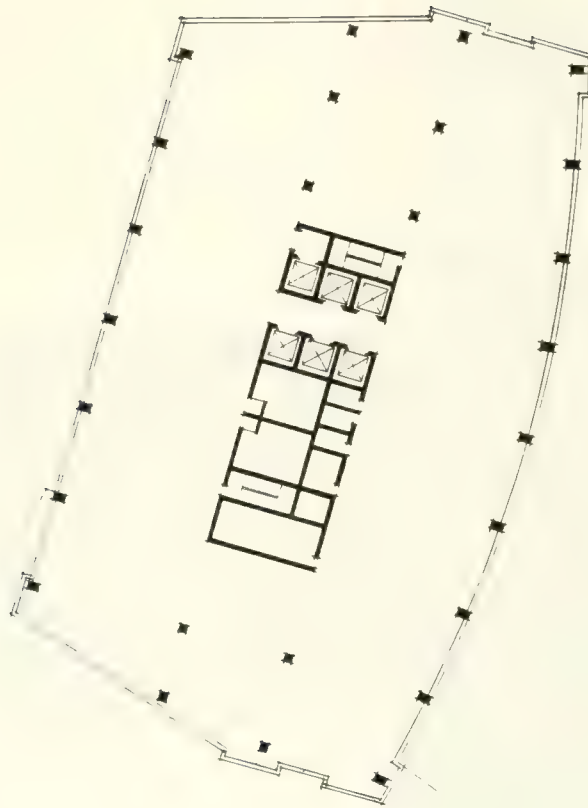
FIGURE V 3.37

OWNER FRANK KING ASSOCIATES LP

DEVELOPER OLD STATE MANAGEMENT CORP

ARCHITECTS CRANG AND BOAKE INC. & SHEPLEY, BULFINCH, RICHARDSON AND ABBOTT





TYPICAL UPPER FLOOR PLAN



FORTY FRANKLIN

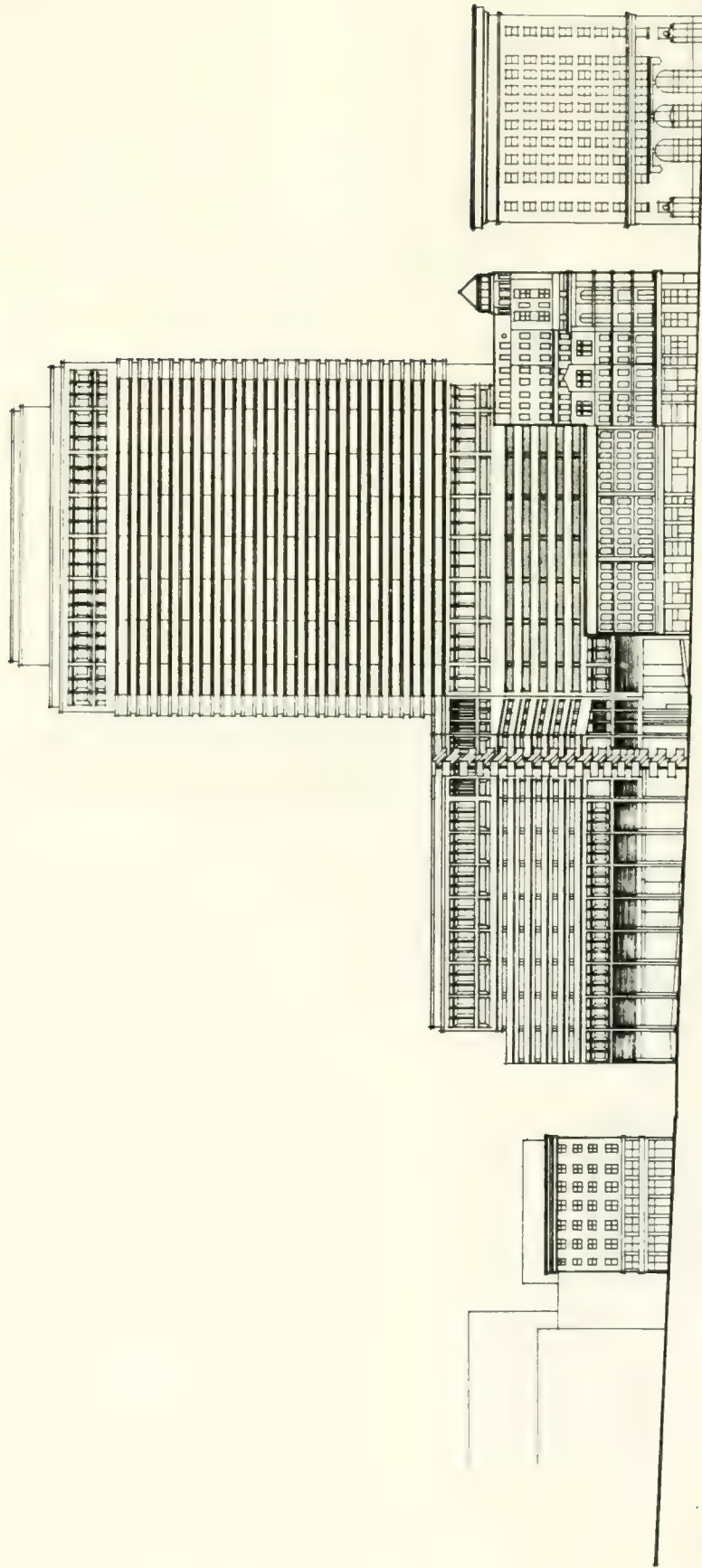
FIGURE V 3.38

OWNER FRANK KING ASSOCIATES L.P.

DEVELOPER OLD STATE MANAGEMENT CORP.

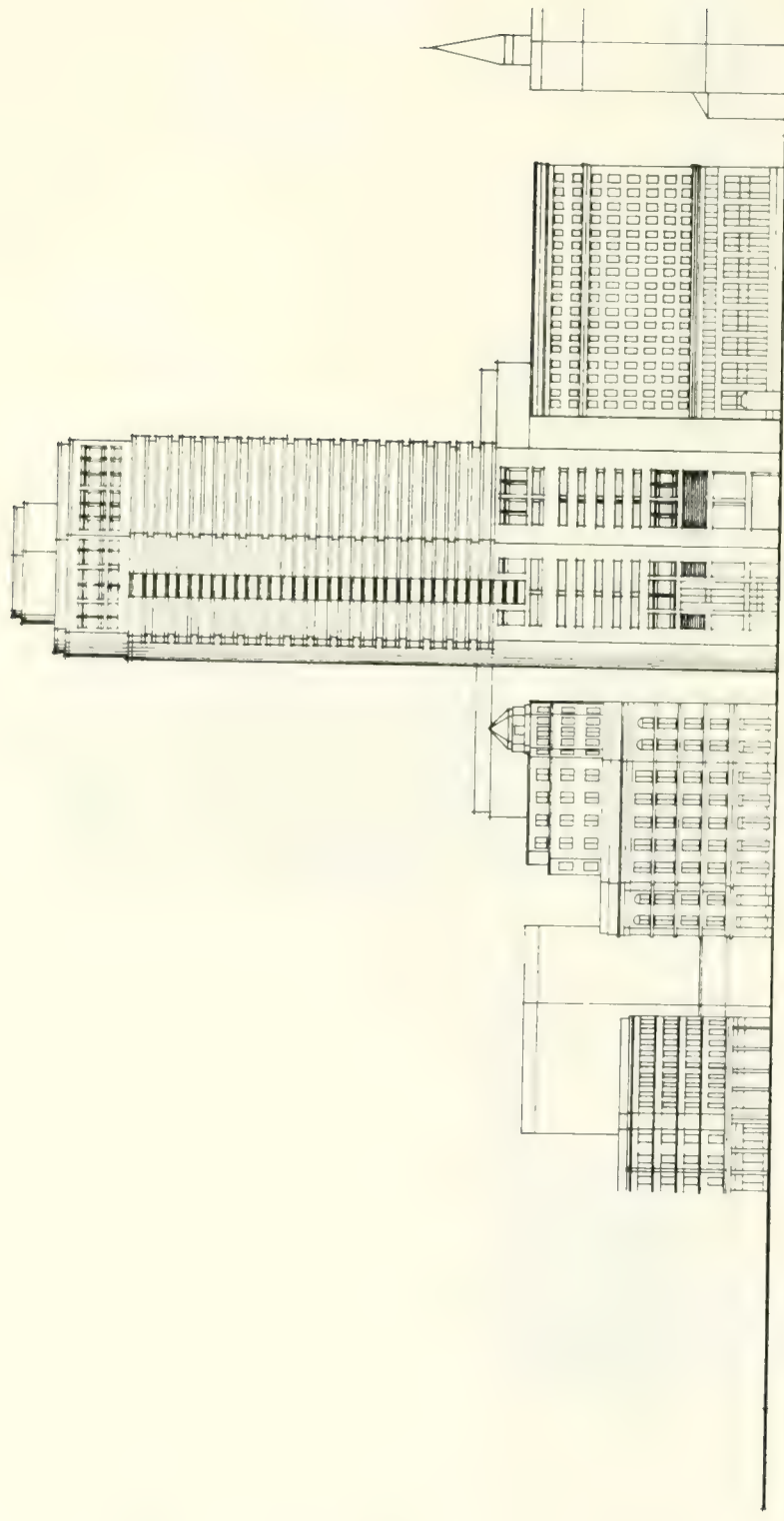
ARCHITECTS CRANG AND BOAKE INC. ■ STEPLEY, RULFENCH, RICHARDSON AND ABBOTT





0 16 32 48 64 80 96 112 128

FRANKLIN STREET ELEVATION



ARCH STREET ELEVATION

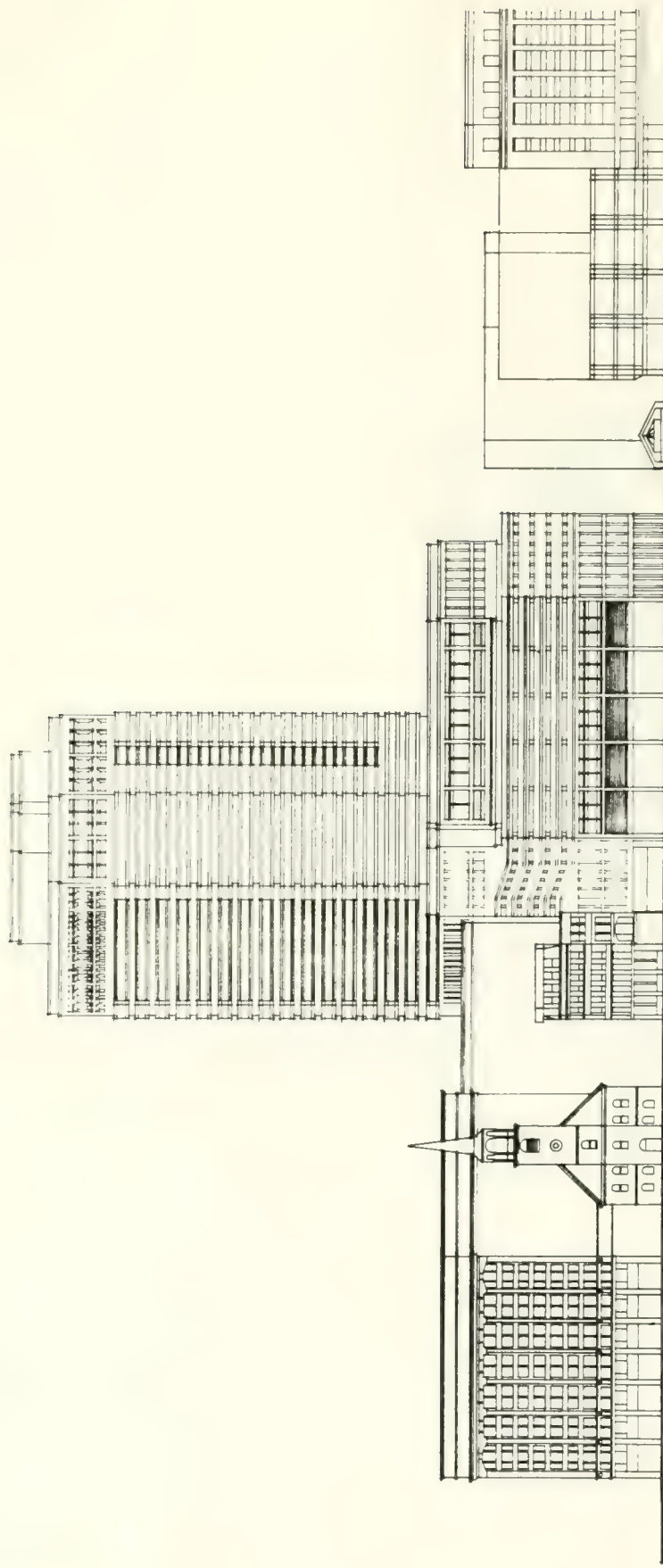
OWNER FRANK-KING ASSOCIATES, L.P.

DEVELOPER OLD STATE MANAGEMENT CORP.

FORTY FRANKLIN

ARCHITECTS CRANG AND BOAKE INC. & SHEPLEY, BULFINCH, RICHARDSON AND ABBOTT

FIGURE V 3.40



0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990 1000

WASHINGTON STREET ELEVATION



OWNER: FRANK-KING ASSOCIATES, L.P.

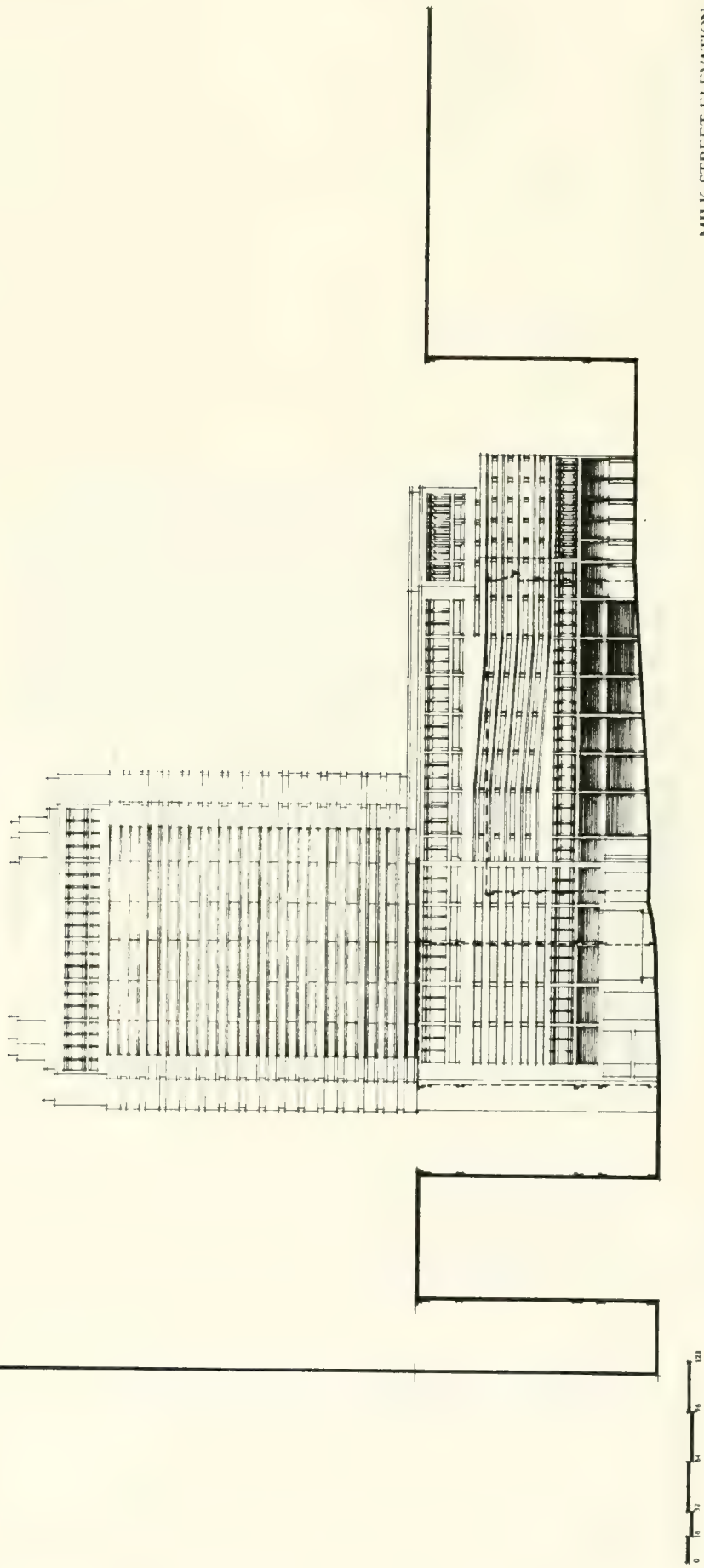
DEVELOPER: OLD STATE MANAGEMENT CORP.

FORTY FRANKLIN

FIGURE V 3.41

ARCHITECTS: CRANG AND BOAKE INC. & SHEPLEY, BULFINCH, RICHARDSON AND ABBOTT





MILK STREET ELEVATION



OWNER, FRANK-KING ASSOCIATES LP

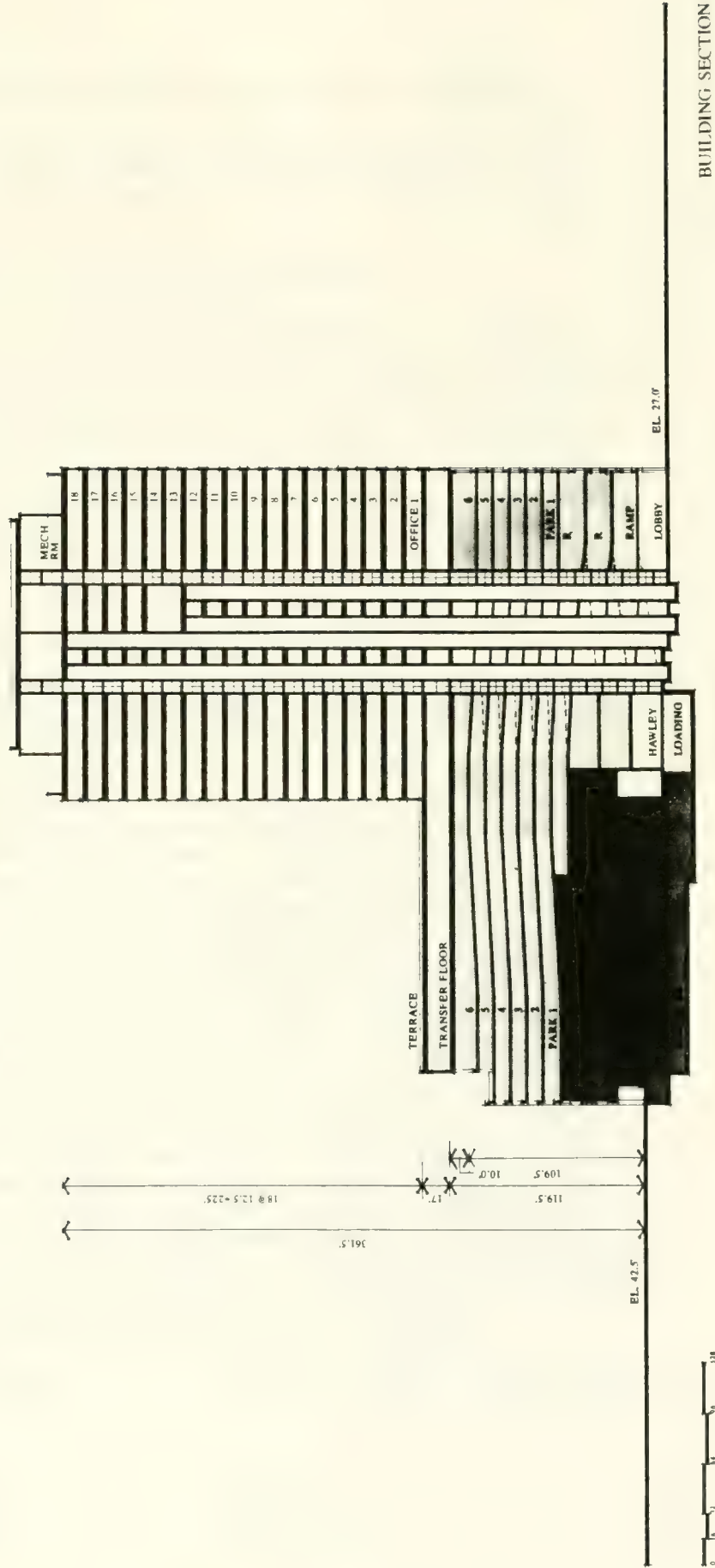
DEVELOPER, OLD STATE MANAGEMENT CORP

FORTY FRANKLIN

FIGURE V 3.42

ARCHITECTS, CRANG AND BOAKE INC. ■ SHEPLEY, BULFINCH, RICHARDSON AND ABBOTT





BUILDING SECTION

FORTY FRANKLIN

FIGURE V 3.43

4.0 RELATIONSHIP TO URBAN DESIGN OBJECTIVES

The following paragraphs highlight the project's conformance to the urban design objectives set forth in Article 38 and the Midtown Cultural District Plan.

4.1 Relationship to Adjoining Districts

Options A and C maximize new connections to surrounding districts by designing the new office building lobby as a pedestrian concourse linking Arch Street to the existing arcade around Woolworth's. This approach results in a new-block pedestrian connection between the Financial District and the retail area of Washington and Franklin Streets. Scheme B does not incorporate this new connection since it does not propose any changes to the existing street-level plan.

4.2 City Streets/Pedestrian Environment

When the existing Woolworth building was developed, Hawley Street was discontinued as a vehicular through street between Franklin and Washington Streets in order to create a large parcel that extended from Arch Street to Washington Street. Hawley Street was divided into two pieces creating cul-de-sacs leading in from Milk and Franklin streets. These "dead ends" are inefficient from a traffic viewpoint and result in unappealing and forlorn pedestrian space. Option A proposes to reconnect Hawley Street and reopen it to through traffic if technically feasible, thereby strengthening the street pattern and rejuvenating and improving the existing pedestrian route between Milk and Franklin Streets. Automobiles will enter the garage from Franklin Street via Hawley Street and will exit via Hawley Street to Milk Street. Concurrently, Arch Street will be improved due to the elimination of the existing overscaled garage entrance curb cut and apron, which will be replaced by the entrance to the office building's lobby concourse. The existing pedestrian arcade along Hawley, Franklin and Washington Streets will be revitalized by renovation including new brick and stone paving, granite exterior walls, new storefronts and new lighting to provide a more appealing environment for the pedestrian.

Option B, due to its limited program, will not



substantially change the street pattern or environment.

Option C, while similar to Option A with regard to Arch Street, does not include improvements to the existing pedestrian arcade nor does it propose opening Hawley Street to through traffic. However, entrance and exits of the parking garage will be located on Hawley Street, similar to the plan proposed for Option A.

4.3 Orientation

Downtown Boston's irregular street pattern provides views and an engaging atmosphere, but also creates an environment in which it is difficult to obtain and maintain sense of direction. The Midtown Cultural District Plan recommends "maintaining the established streetwall...to retain the street's continuity." Option A reinforces the street pattern and provides strong visual clues on the skyline by reflecting the alignment of the surrounding streets. The long facade along New Hawley Place follows the curve of Franklin Street; the opposite facade is approximately parallel to the portion of Milk Street it relates to; the short facade facing Washington Street has its major portion parallel to Washington Street and the faceted Arch Street facade is related to the bend in Arch Street. The tower configuration is defined by the western side of Hawley Street and thus reinforces definition of that street and clearly distinguishes the "office" site from the "Woolworth" site.

Option C is also shaped so that its facades are related to the adjoining streets. However, the tower's overlapping condition at Hawley Street is not as clear in terms of street relationship and orientation as is Option A.

4.4 Massing and Height

Article 38 calls for a 350-foot height limit and an maximum FAR of 16 (with bonuses) for the site. It also limits the maximum average tower floorplate to 22,500 s.f. Option A has an average tower floorplate of 21,740 s.f., well under the maximum allowed, in order to properly relate the addition to the existing building, the surrounding street pattern, and the general Financial District and Downtown Crossing area. The building's shape, both in plan and section, is unusual and site-specific. Its visual center of gravity is toward the Financial District, away from the retail district pedestrian zones. Its height of about 436 feet is greater than allowed, but is the result of a conscious

decision to keep the Washington Street and Franklin Street streetwalls as low as possible in order to benefit the pedestrian zones. This decision, plus the desire to relate in plan to the street pattern, results in a higher mass than permitted by zoning. The FAR is over 17, even though the project does not contain any more office area than the PNF scheme which had an FAR of less than 16. The reason for this increase relates to the parking garage, where two major changes are proposed. First, the existing circular ramps are to be demolished and replaced by inclined ramps wrapping around the new main elevator and stair core. Second, the existing lightwell located in the garage above the center of Woolworth's is to be filled in, if technically and economically feasible, in order to increase parking capacity. These changes add area and parking capacity and thus increase FAR, even though they don't increase the perceived mass of the project. If the ramp system wasn't changed, and the lightwells not filled in, the apparent mass of the project would appear the same, but its FAR would be under 16. It could be argued that Option A, in terms of massing, visually conforms to the planning objective as expressed by the FAR requirement.

The massing and height of Option B is in general conformance with as-of-right (enhanced) zoning requirements.

The Option C massing approach is similar to Option A, except that its non-stepped shape results in a simple inarticulated mass with uniform size floorplates, typically 22,430 s.f. in size. The simple, non-stepping form is unable to take full advantage of some of the area provided by the irregularly shaped site and, consequently, the building is longer than Option A and visually overlaps the Woolworth portion of the building. Furthermore, in an attempt to provide as much area as possible within the allowable height, the design includes one floor, totaling approximately 60,000 s.f., covering almost the entire footprint of the site, and similar to the "transfer" floor proposed in the PNF scheme. Although this floor provides added office floor area, it does so at the expense of increasing building height along Washington and Franklin Streets.

All proposed options preserve the view from Arch Street of the Richard Haas mural, although Option A and C constrain the area from which the mural will be viewed.

The Arch Street end wall of Option A is shaped to provide a small setback on Arch Street, providing a widened sidewalk related to the project's Arch Street entrance. The setback also preserves the view looking south down

Arch Street of the 64-74 Franklin Street facade and tower element. The Arch Street end wall of Option C is not set back and follows the street line more closely.

4.5 Articulation, Scale, Details and Materials

The Midtown Plan states that "bases of new buildings...will respond to the height, width, bay, rhythm and massing of surrounding buildings." In Option A, the Woolworth-garage section has been articulated with vertical building elements to recall the typical rhythm and building dimensions in the area. As can be seen from the concept design drawings, both the base and tower elements are further articulated vertically to create a classical organization of base, middle and top. The top of the tower is richly crenulated, providing a decorative image and termination.

The facade utilizes fine materials, including granite and limestone in a variety of colors and finishes that is compatible with the fabric of surrounding buildings. The scale and relatively solid overall wall treatment is harmonious with that of the Financial District as well as Downtown Crossing. Facade treatment acknowledges the context by recognizing major cornice and belt course reference lines.

The financial framework of Option C does not permit the renovation of the existing Woolworth/garage facade. Therefore, the tower addition utilizes precast concrete and/or limestone in color, detail and finish that is more elaborate but compatible with the design vocabulary of the existing building. This approach was designed in recognition that, given the overlapping massing and functional relationships of tower to base, it is inevitable that the project will be perceived as a single complex.

Option B utilizes precast concrete as the dominant material for the three-story addition, utilizing the exterior wall detailing used on the third floor of the existing building. Since the overall scope of Options B and C is much less comprehensive than Option A, it will be difficult to discern any meaningful change from the existing condition with respect to the existing Washington Street and Franklin Street facades.

4.6 Micro-climate/Tower Setbacks

The setbacks of the tower from Franklin and Washington



Streets help to preserve the scale and character of the shopping districts and are much greater than required by the Zoning code. Further, the tower location, set as far back into the Financial District as possible, minimizes new shadow on major pedestrian zones, public parks (Boston Five) and significant historic structures (Old South Meeting House). With regard to the Woolworth/garage portion located on Washington and Franklin Streets, the added roof of Option A, or added floors of Option B, or added floor of Option C, is set back from the streetline to minimize an increase of the perceived streetwall height at Washington and Franklin Streets.

The office tower is not set back from Arch Street since to do so would simply move it closer to Washington Street and increase its protrusion over Woolworth's. It was felt that the possible benefit of a setback on Arch Street was not worth the consequence of additional impacts to Washington and Franklin Streets.

4.7 Public Spaces and Cultural Benefits

Forty Franklin will provide new public space at its office building lobby concourse (Schemes A and C) and will retain the existing pedestrian arcade on Washington and Franklin Streets. Plans for the involvement in the provision of other cultural space and a child care facility are outlined in the General Information section of this DP/EIR which summarizes the public benefits of the project.

5.0 VISUAL ANALYSIS

5.1 Introduction

The following perspective sketches and accompanying text describe the urban design characteristics of proposed Options A, B and C compared to existing conditions. As such, they illustrate and summarize the urban design impacts on the visual environment likely to result from the development proposals and also describe the ways in which the options compare. Four pedestrian level views and one aerial view taken from various locations close to the project site were considered, as shown in Figure V.5.1

5.2 Methodology

Pedestrian-level and aerial views were selected to most clearly illustrated the impact of Options A, B and C upon:

- (1) Washington Street and the Boston Five Cents Savings Bank Park.
- (2) Ladder blocks, specifically Bromfield Street.
- (3) The corner of Washington and Franklin Streets and Filene's Park.
- (4) Hawley Street, in the vicinity of Franklin Street.
- (5) Overall downtown skyline.

After selecting the potential viewpoints, several photographs were taken in the vicinity. After selection, views of existing conditions were traced from the photograph. Perspectives of Options A, B, and C were then generated from the same viewpoint and superimposed on the existing views to show the changes to view caused by the optional proposals. Thus, each set of drawings compares the existing condition with the three development options under analysis.

VIEW POINTS OF PERSPECTIVES

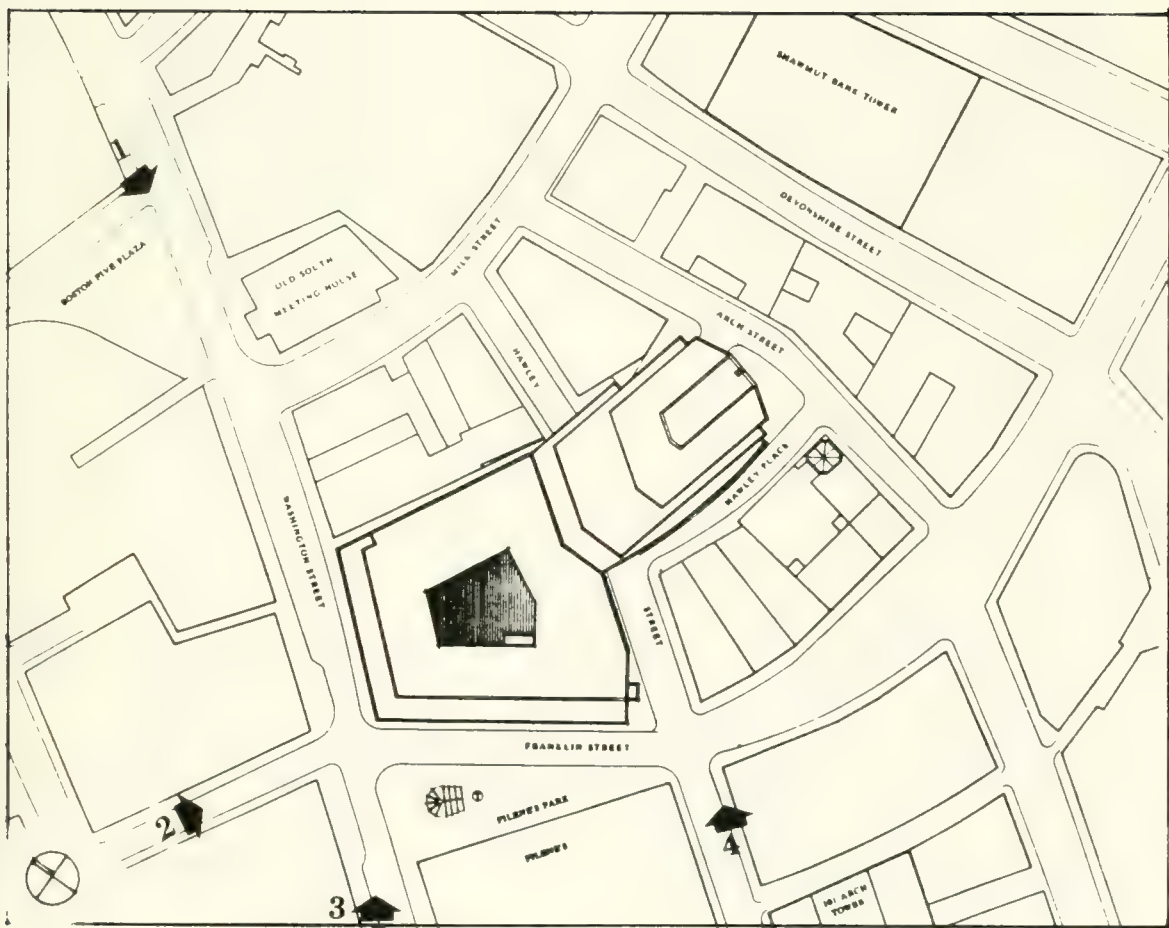


FIGURE V 5.1

5.3 View Descriptions

5.3.1 Washington Street from the Boston Five Park

This view, from the junction of Washington and School Streets, views the project from the area of the Boston Five Park (Figures V.5.2 through V.5.5). The view is framed by the Old South Office Building on the left and the Boston Five Park on the right. The Old South Meeting House is prominent on the left side of Washington Street, and the existing Woolworth Building is readily apparent farther down the street.

Option A changes the facade of the Woolworth Building but the new office building is barely seen due to the shielding effect of the Old South building. The Meeting House steeple remains silhouetted against the sky.

The view of Option B shows the three-story addition to the Woolworth Building, creating a noticeably higher mass behind the entire Meeting House. The existing Washington Street facade of Woolworth's is unchanged.

The view of Option C shows the effect of the additional "transfer" floor which is added to the top of the existing building. The new office tower is apparent beyond the end of the Old South Building; the tower is more perceptible than Scheme A because its footprint is somewhat longer and so its northerly facade is closer to Washington Street.



FIGURE V 5.2



FIGURE V 5.3



FIGURE V 5.4



FIGURE V 5.5

5.3.2 View Down Bromfield Street

This view (Figures V.5.6 thru V.5.9) looks east on Bromfield Street from the corner of Province Street, toward the intersection of Washington and Franklin Streets. The view is framed by the existing buildings on each side of Bromfield, with Woolworth's prominently located on axis with the street. Behind Woolworth's, the Bank of Boston and 101 Federal Street towers are clearly seen.

A major change resulting from Option A is the rebuilt facade of the existing building at Washington and Franklin Streets. The new office tower is clearly visible in the background, and its stepping profile is readily perceptible.

The view of Option B shows the relatively major impact to the Washington Street and Franklin Street corner, resulting from the three-story office addition to the top of the existing building.

Option C adds one office floor to the top of the existing building, but in other respects the view of the Washington Street/Franklin Street corner is unchanged. The office tower, as with Option A, is visible in the background.

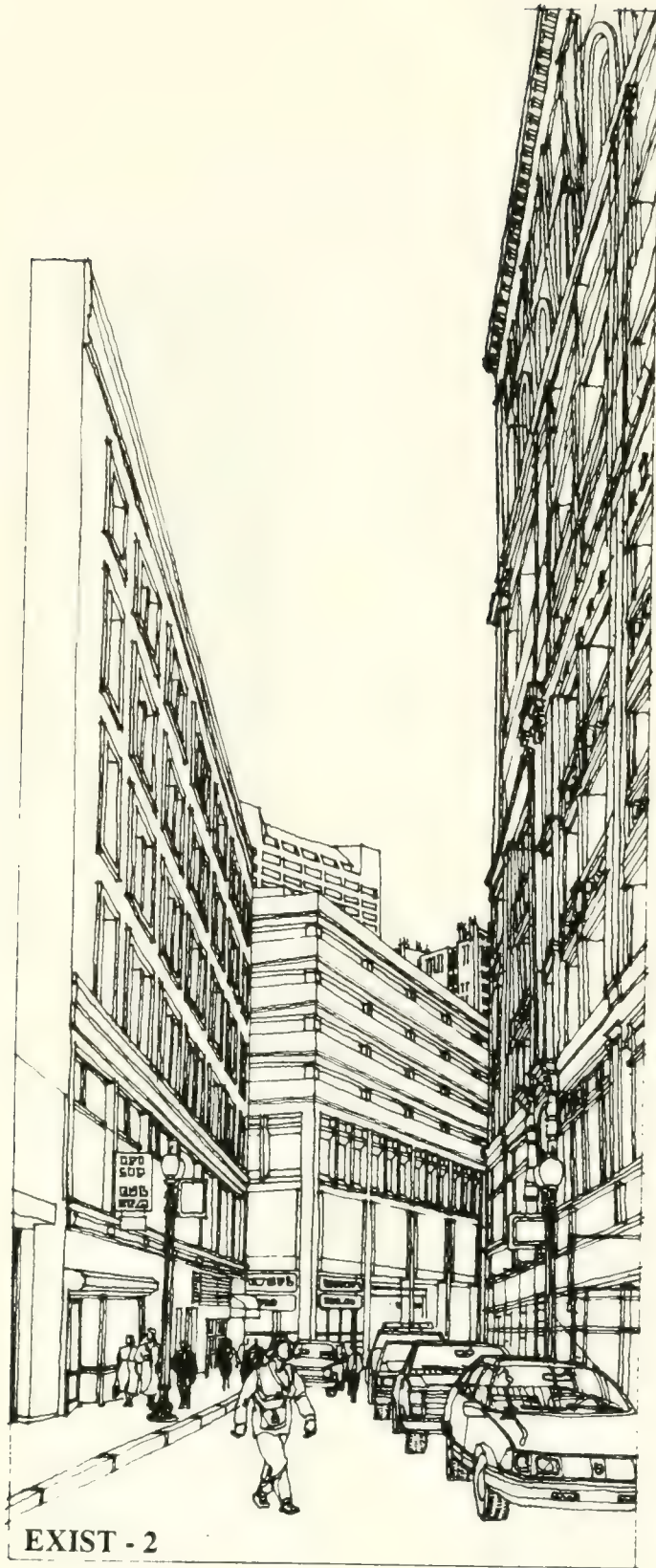


FIGURE V 5.6

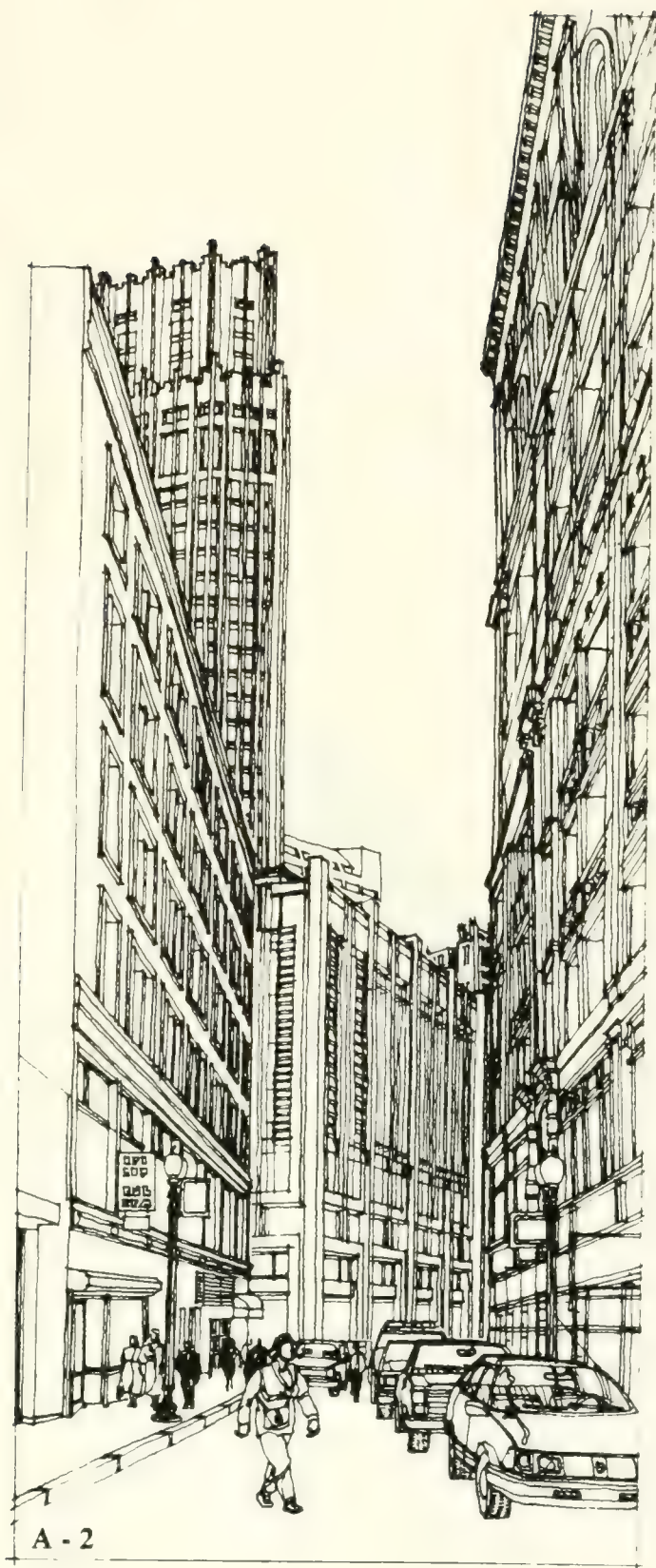


FIGURE V 5.7

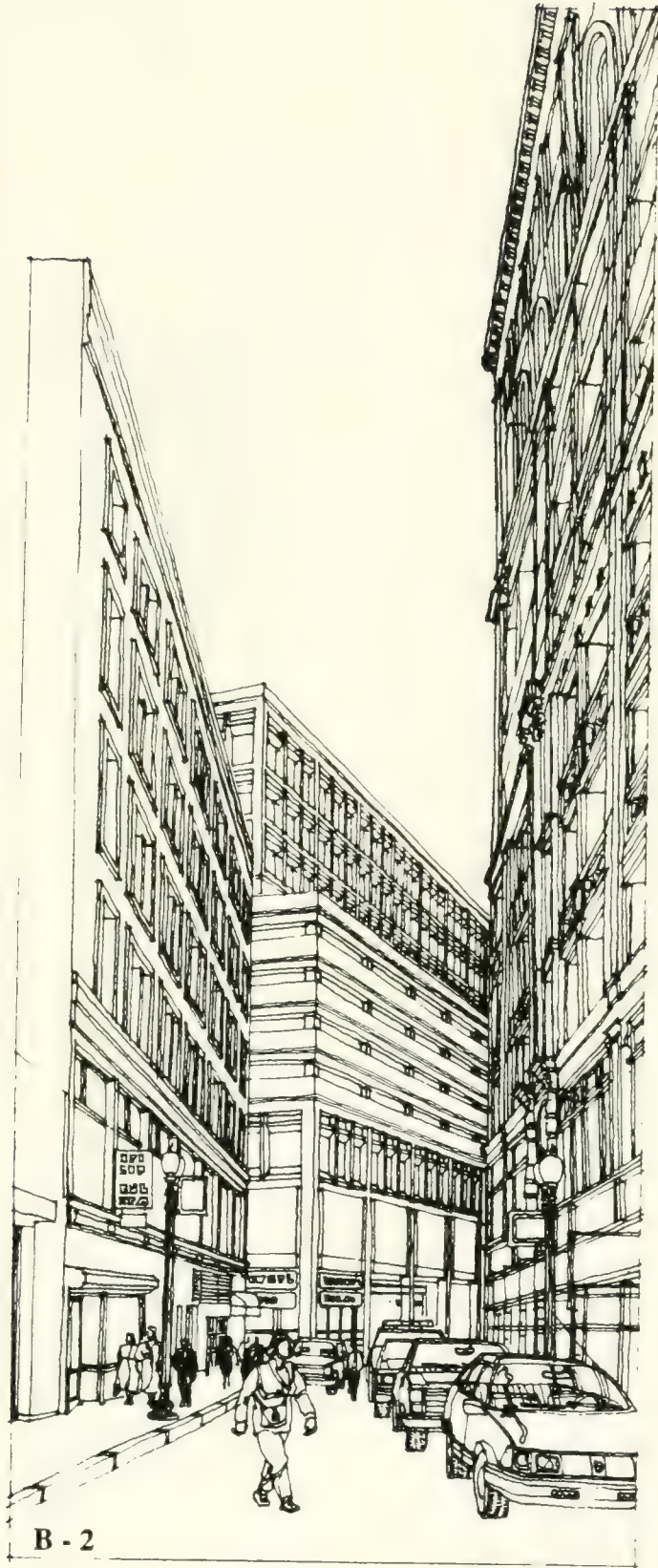


FIGURE V 5.8

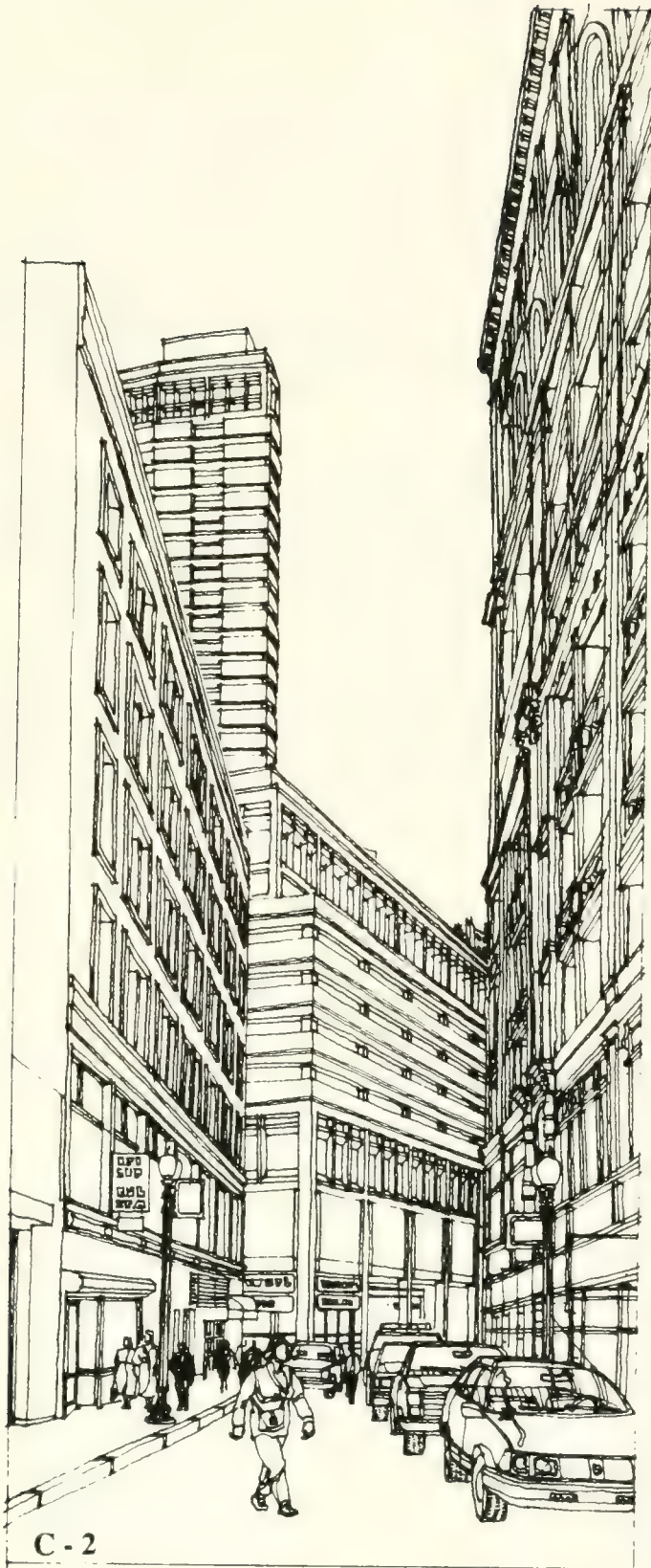


FIGURE V 5.9

5.3.3 View of Washington/Franklin Street Corner

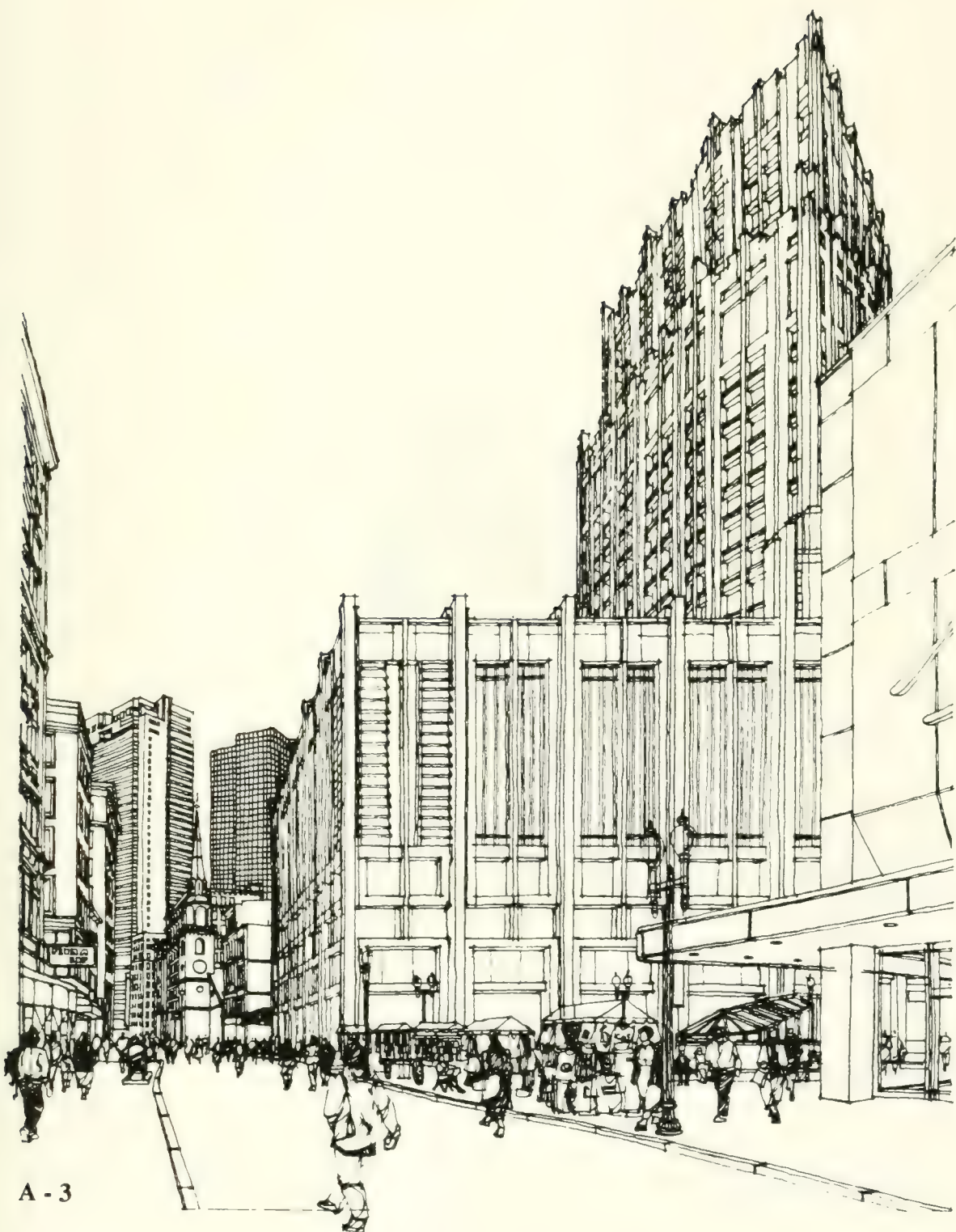
Figures V.5.10 through V.5.13 provide the view taken from Washington Street in front of the newest wing of Filene's and looks north on Washington Street. The view is framed by the corner of Filene's on the right and the Jewelers Building on the left. The Washington Street edge of Filene's Park with its MBTA kiosk is clearly shown in front of the prominent Franklin Street facade of the existing building. Two high towers, Devonshire Tower and 53 State Street, are clearly visible in the background on the left behind the Old South Meeting House, and the Shawmut Bank tower is prominent on the right, above the existing building.

Option A transforms this view with the renovated facade of the existing building. The existing streetwall height is not substantially changed. The new office tower is set back on the right in front of the Shawmut Bank tower, and the benefit of its stepping profile is apparent.

The Option B view shows the impact of the three-story office addition on top of the essentially unchanged existing building. The Option C view shows the impact of the one-story "transfer" floor addition; the office building tower, though somewhat lower in height than Option A, seems to have equal impact to this view.



FIGURE V 5.10



A - 3

FIGURE V 5.11





B - 3

FIGURE V 5.12



C - 3

FIGURE V 5.13

5.3.4 View of Hawley Street

This view (Figures V.5.14 through V.5.17) looks north on Hawley Street from a location on Hawley Street west of Franklin Street. The view is framed by Filene's south on the left and 65 Franklin on the right. The Hawley-Franklin Street corner of the existing building with its open egress stair is prominent, and the existing circular ramps of the parking garage can be seen in the background.

Option A transforms the foreground portion of the existing building due to the rebuilt facade, while farther down Hawley Street, the new office addition is clearly visible. The circular ramps are no longer present and the "gateway" at the end of Hawley Street indicates the new through connection to Milk Street.

The Option B addition increases the height of the existing building, and the new office lobby and elevator tower revises the Hawley-Franklin Street corner. The impact of the addition is relatively great, due to its location close to the streetwall.

Option C adds one floor to the existing footprint, but in other respects, the existing foreground portion is unchanged. The office addition is prominent at the end of Hawley Street, and the somewhat awkward "overlapping" relationship of tower to the lower base is seen at the corner of Hawley Street and New Hawley Place.



FIGURE V 5.14

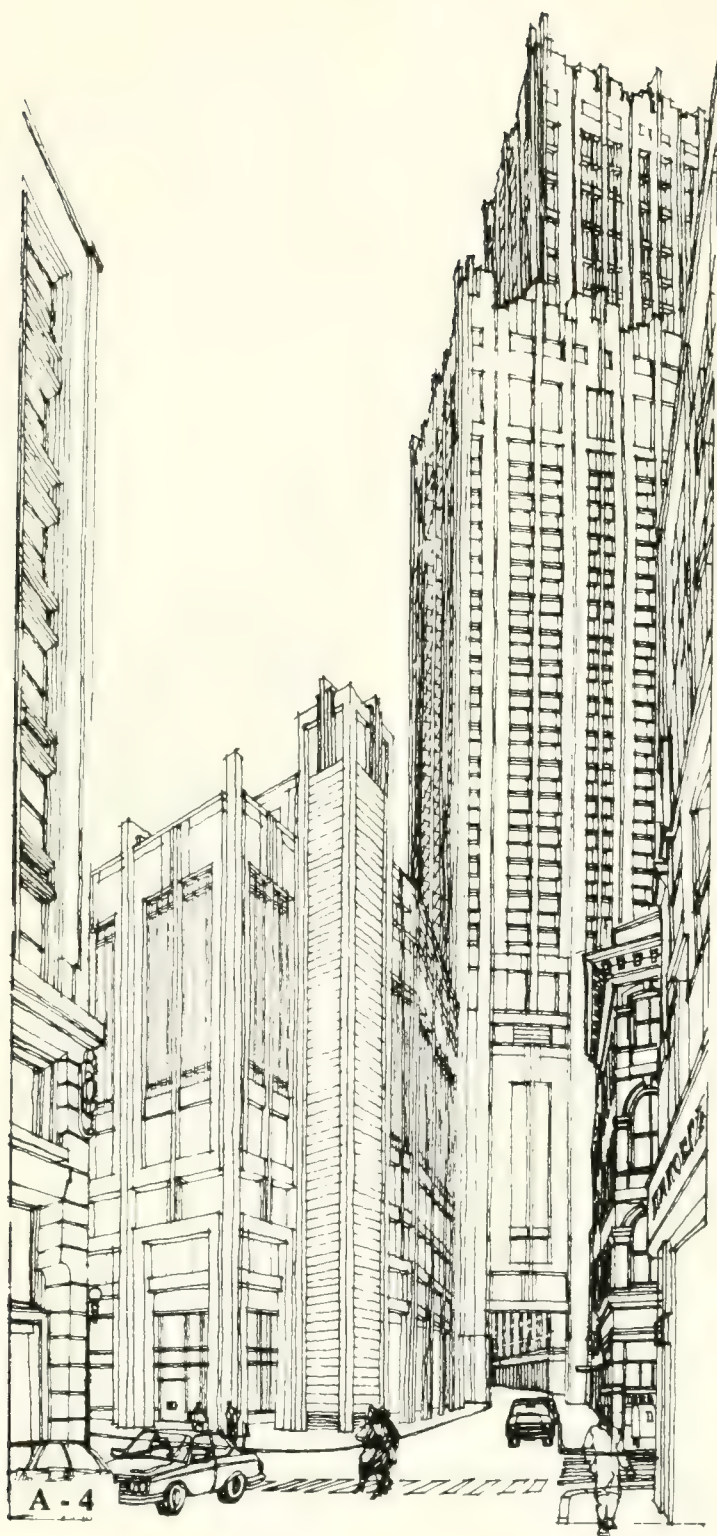


FIGURE V 5.15

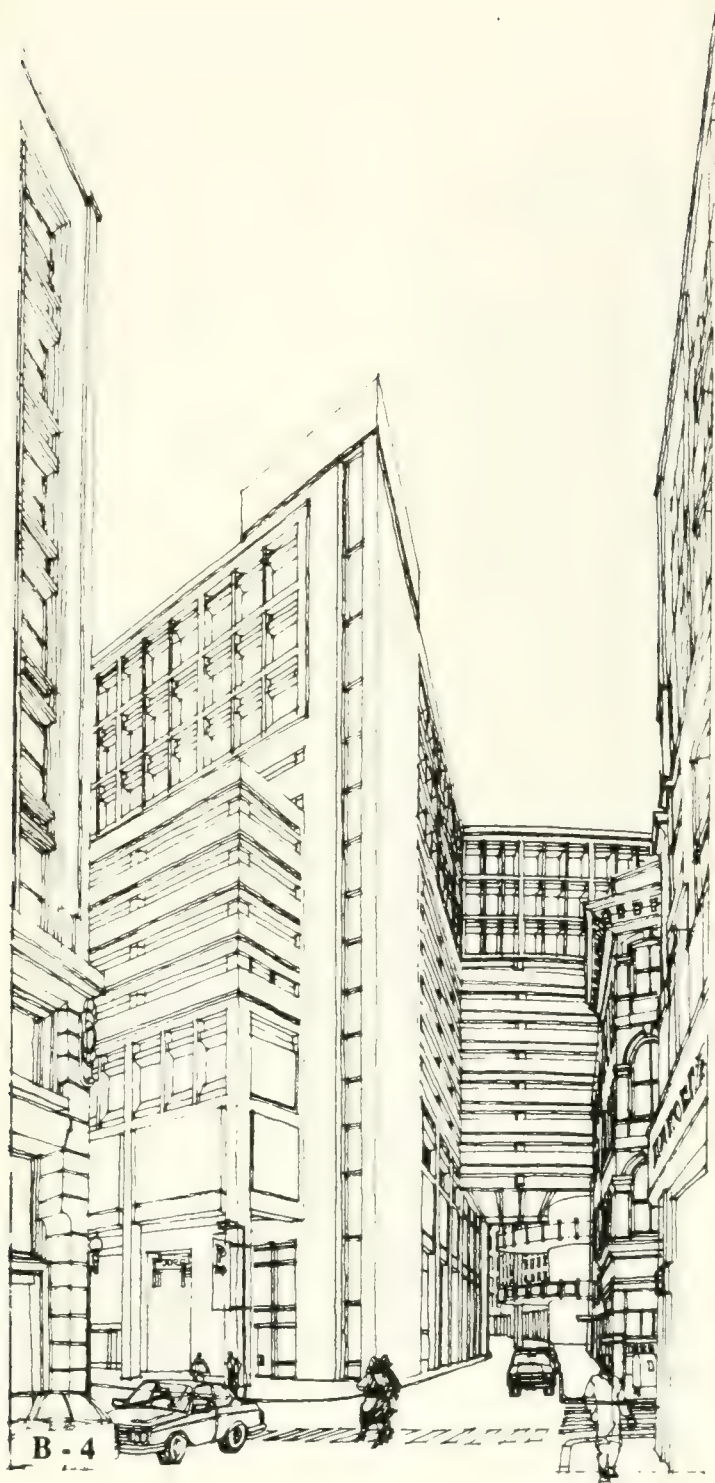


FIGURE V 5.16

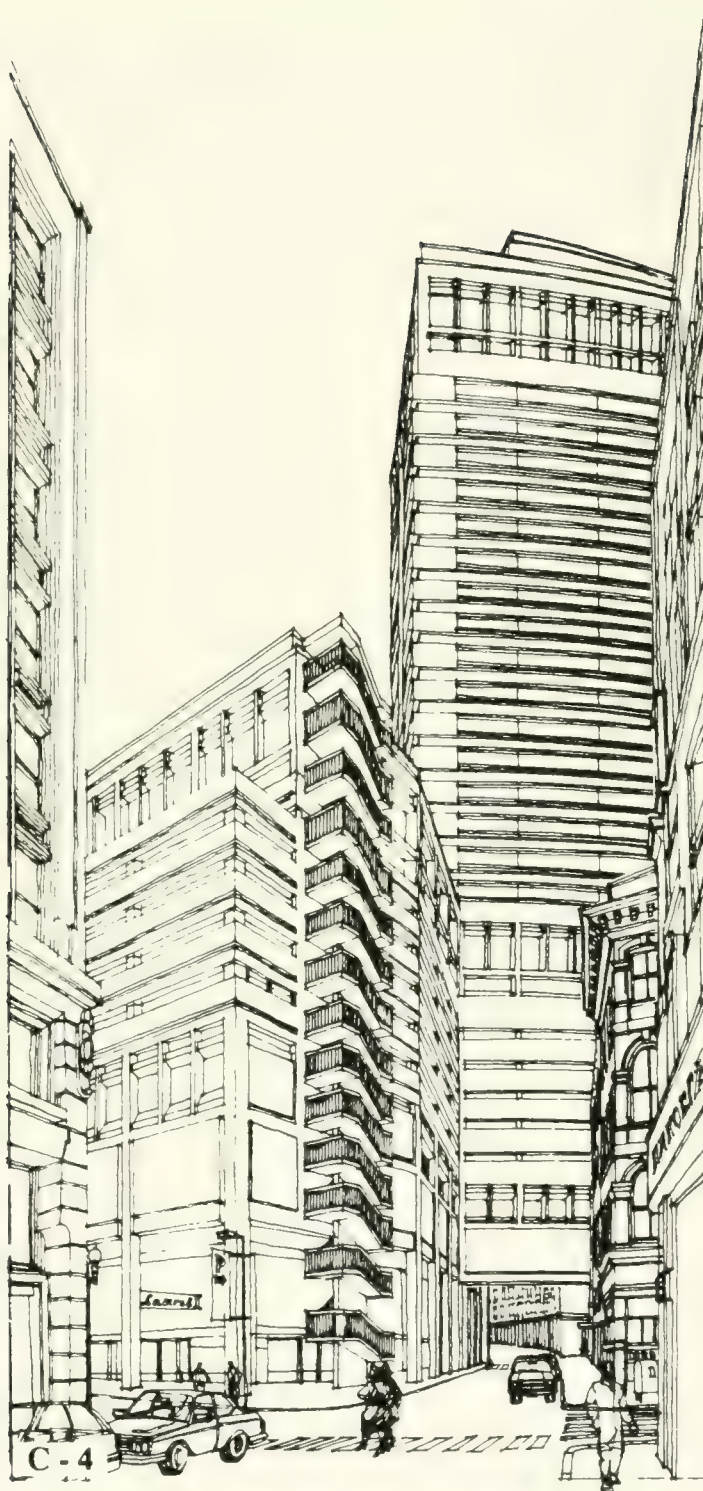


FIGURE V 5.17

5.3.5 Aerial Views

Figures V.5.18 through V.5.21 provide an aerial view. The view looks northeast toward Boston Harbor from a point somewhere above the corner of Tremont and Boylston Streets. The high towers of the Financial District are clearly visible, as are the low ladder blocks and Downtown Crossing districts. Views of Options A, B and C compare the skyline image of each scheme. Option A, with its stepping profile and rich vertical articulation, appears to present the most appealing and responsive image, and seems properly related to the existing city skyline.

5.4 Conclusions and Mitigation

Based on the sketches included in the Visual Analysis Section, and on review of the three-dimensional massing models, it is apparent that the additional height of Option A as compared to Option C does not result in increased impact. In fact, Option A incorporates features which provide positive impacts, including the redesign and reconstruction of the Woolworth facade and arcades; omission of the "transfer" floor, resulting in a lower base building height at the Washington/Franklin Street intersection, and an articulated "stepped" massing approach which is more responsive to urban design objectives set forth in current planning and zoning documents.

With regard to mitigation, the most important step has already been taken, and that is to locate the office building addition on Arch Street, rather than directly above Woolworth's on the corner of Washington and Franklin Streets. Additional mitigation measures will include further architectural design refinements to produce a project that is sensitive to the urban context and utilizes detailing, scale, materials and articulation to provide an appropriate exterior expression.

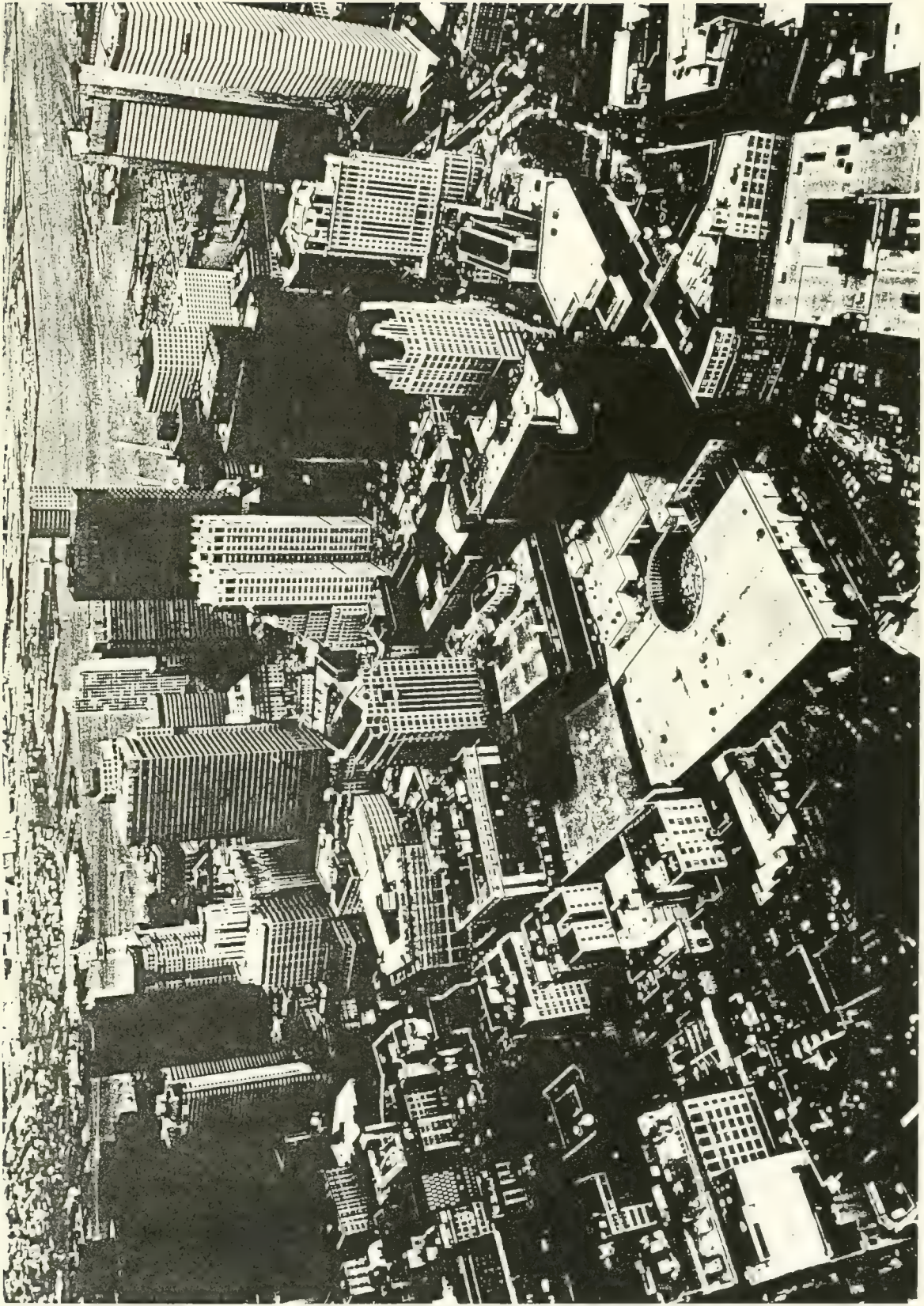


FIGURE V 5.18

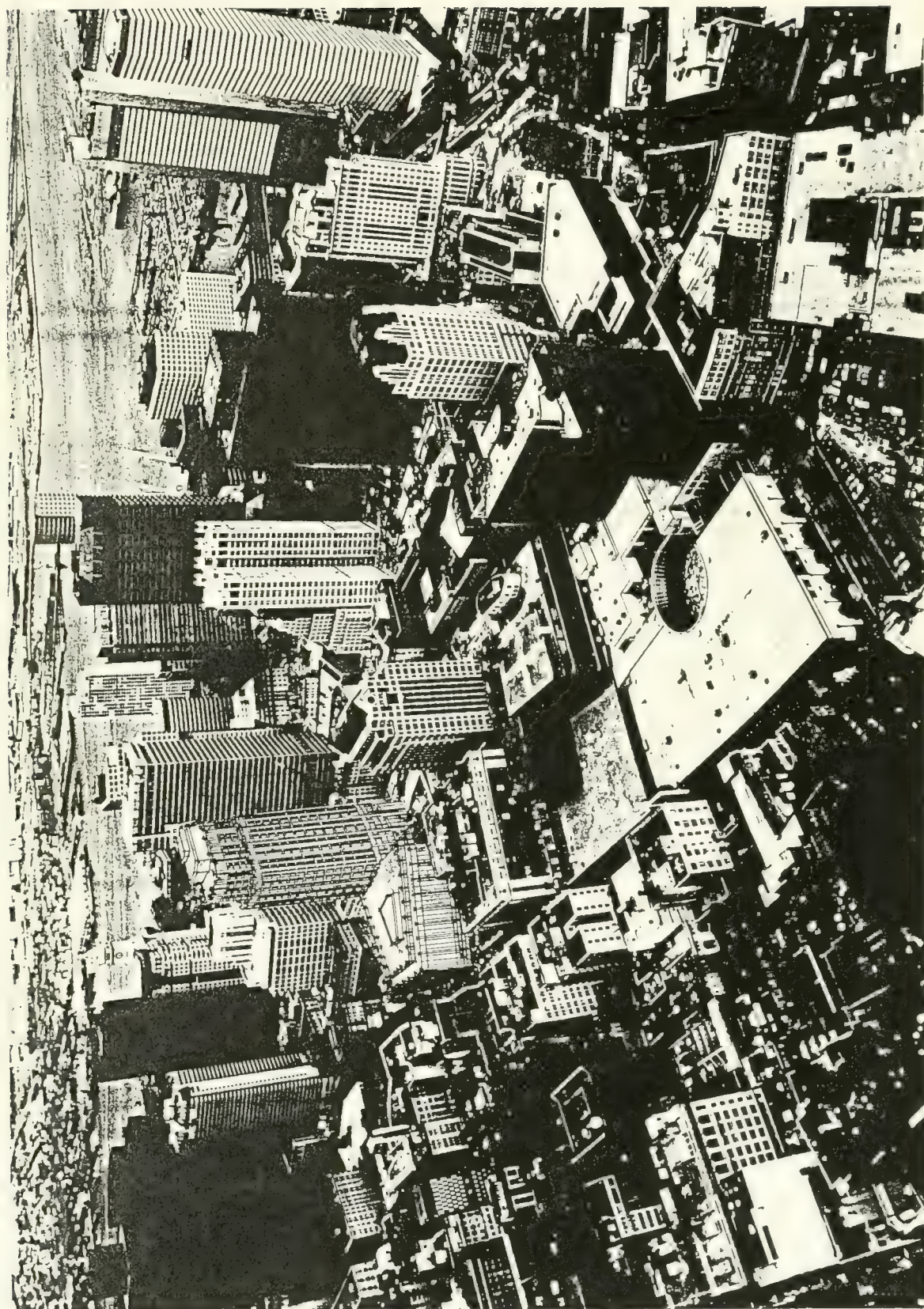


FIGURE V 5.19

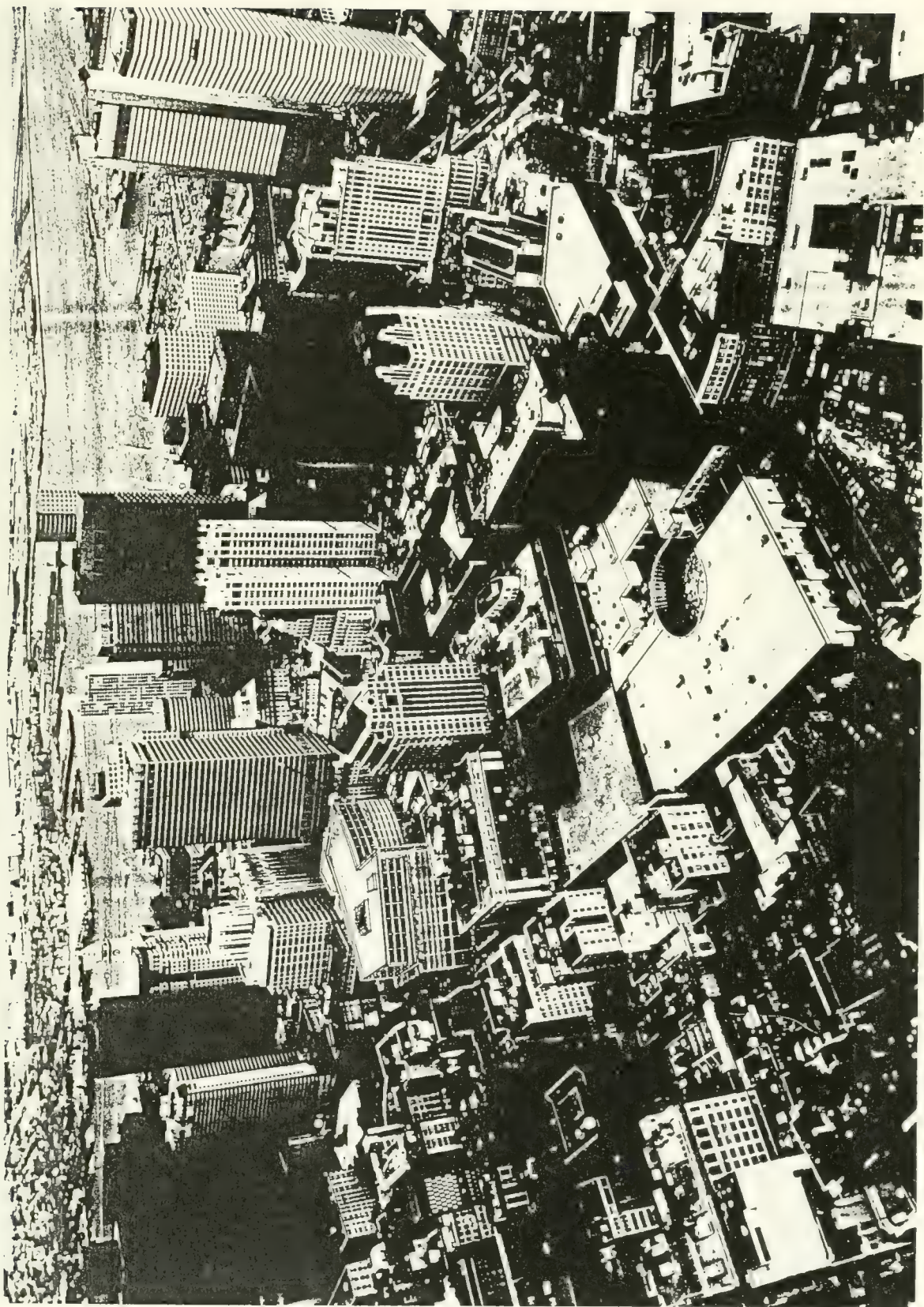


FIGURE V 5.20

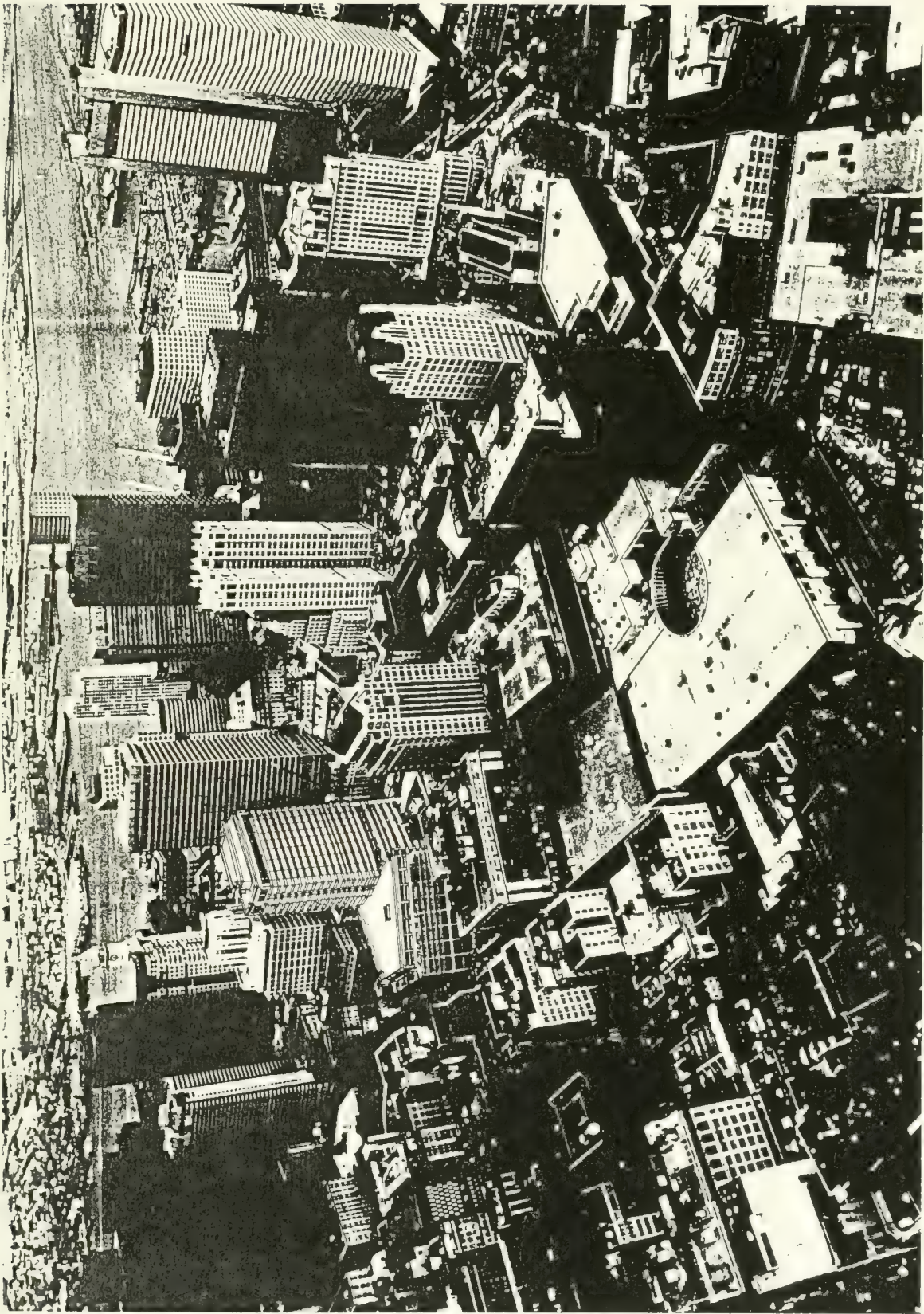


FIGURE V 5.21

URBAN DESIGN SUBMISSION MATERIALS

The Scoping Determination requested that the project proponent submit certain items in conjunction with DPIR submission. These were required in order to determine that the proposed project (a) is architecturally compatible with surrounding structures, (b) exhibits an architectural concept that enhances the urban design features of the subdistrict in which is located, (c) augments the quality of the pedestrian environment, and (d) is consistent with the established design guidelines that exist for the area. The Forty Franklin Concept Design package, submitted under separate cover, includes the following information:

- Site and neighborhood photographs (8" x 10")
- Perspective sketches; Options A, B and C
- Aerial view of the project; Options A, B and C
- Site sections and building elevations; Options A, B and C.
- Site plans; Options A, B and C
- Floor plans; Option A, B and C
- Exterior elevations; Options A, B and C
- Massing models; Options A, B and C

Reduced copies of these drawings are included in this report.

VI. HISTORIC RESOURCES

1.0 INTRODUCTION

This section discusses the relationship of the proposed project to the historic and architectural resources of the site area. The discussion includes an overview of the historic setting of the area, a description of the historic resources within the project's vicinity, an assessment of the potential effects of the project upon historic resources, and an identification of various mitigating measures utilized to minimize such effects.

The principal criteria used in determining the presence of historically significant properties in the project vicinity included listing on the State or National Register of Historic Places or designation as a City Landmark by the Boston Landmarks commission.

Effects of the proposed project were assessed in terms of their potential impact with regard to shadow, scale and facade image.

HISTORIC DEVELOPMENT AND SETTING

The project site is located on a part of what was the Shawmut peninsula. A land mass roughly half its present size, the peninsula was connected to the Roxbury mainland by a narrow neck along the line of the present Washington Street. For the first 250 years of the City's history, the development of what is now the Central Business District was shaped in part by the distinctive topography of harbor and peninsula and by dramatic changes in this topography brought about by large-scale landfill projects. During the last 100 years, however, limited land resources has led to Boston's expansion through vertical development. This has resulted in the replacement of small-scale structures with larger ones.

In the mid-1850's the character of downtown Boston began to change. This transformation was made final by the Great Fire of November 1872, which destroyed 65 acres and 776 buildings in the heart of the city, an area roughly bounded by Washington, Milk Broad and Summer Streets. Because of the fire, examples of typical commercial buildings from the early part of the 19th century are rare except in the Custom House District and the blocks between Washington and Tremont Street, which are characterized by a variety of residential and commercial structures from all periods of the city's growth.

The "burnt district" was rapidly rebuilt into an area of substantial business warehouses described in contemporary newspaper accounts as "the new palaces of Boston merchants". These 4 to 6-story brick and stone buildings have a remarkable unity of scale and style resulting from their construction within a few years after the fire. The area around Church Green, Winthrop Square and Franklin Street, for example, is composed largely of post-fire mercantile buildings, many constructed for representatives of two of Boston's major 19th century industries; clothing and dry goods, and shoe and leather trades. For by then the city was the center of the national wool market and shoe and leather industry and was the second largest U.S. port in volume of business.

By the late 19th century, Boston's land area had reached its maximum dimensions. Increased vertical development was made possible by technological innovations, including the elevator and steel frame construction. By the 1880's 8 to 10-story "skyscrapers" began appearing on the Boston skyline, and within two decades whole areas, particularly the Financial District and the Washington Street retail district, were taking on a new scale and appearance.

In the Financial District, the new, tall office buildings housed the banks, insurance companies and investment firms which marked the City's position as the financial, industrial and trade center of New England and the source of capital for much New England manufacturing. The number of Boston banks, for example, had grown from four in 1812 to seventy-four in 1890. This trend continued through World War I and the 1920's which saw construction of many office buildings, most about 100 to 130 feet high.

From the Depression through the early 1960's the city suffered from economic stagnation. Beginning in the early 1960's however, ambitious urban renewal plans and private development activity, which capitalized on pent-up demand for office space and on a major shift in downtown Boston's economy towards the service sector, have led to the construction of a number of 25 to 40-story office towers that have further changed the Boston streetscape.

3.0 HISTORIC RESOURCES

3.1 Introduction

There are no historic properties within the limits of the project site. However, a number of historic resources lie within a two-block radius of the site, as described in the following sections, and as shown on Figure VI.3.1. and VI.3.2. Table VI.3.1 lists the various districts and categories of historic properties.

TABLE VI.3.1
KEY TO ABBREVIATIONS

NRDOE	Determined eligible for National Register listing
NRDIS	National Register District
MA/HL	Massachusetts Historic Landmark
NR	National Register
NRIND	National Register Individual Property
NHL	National Historic Landmark
PR	Preservation Restriction
LL	Local Landmark

BLC Boston Landmarks Commission

Class I	- Highest Significance
Class II	- Major Significance
Class III	- Significant
Class IV	- Notable
Class V	- Minor

3.2 Historic Districts in Project Area

The Forty Franklin project site is bounded by two well known Boston historic districts, both known for their architecture and as the locale of significant events in American history.

3.2.1 Commercial Palace District

This approximately nine-block area is at the crossroads of Boston's downtown retail and financial districts. Designated as a NRDOE district, it includes two important junctions, Winthrop Square and Church Green (where Bedford, High, Summer and Lincoln Streets join) and contains sixty commercial buildings within the rough boundary streets of Hawley, Chauncy, Bedford, Lincoln, Devonshire and Franklin Streets. The area is important as a vehicular and pedestrian path into the heart of the

HISTORIC RESOURCE LOCATIONS

1. Old South Meeting House
2. 20-30 Bromfield street and Wesleyan Assoc. Building
3. Filene's
4. Wigglesworth Building
5. International Trust Co.
6. Old South Building
7. Jewelers Building
8. 42-74 Franklin Street
9. Boston Safe Deposit Building
10. 41-71 Franklin Street
11. Newspaper Row District

(REFER TO FIGURE VI 3.2)

central city.

The District contains a mixture of low-scale, 19th-century masonry, commercial buildings, as well as modern, high-rise office towers. Three-fifths of the District's structures date from the years after the Great Fire of 1872, when the City erected four to six-story "commercial palaces" with facades of granite, marble, sandstone or brick in a variety of styles germane to the Victorian era. These buildings form a unified pattern due to similarities of scale, materials, construction, decoration, and lack of setbacks. Many of the original decorative cast-iron storefronts still remain, especially along Kingston Street. The area is also notable for its colonial winding street pattern.

3.3.2 Newspaper Row District

To the north lies Newspaper Row (NRDIS), which is an ensemble of four low-scale, masonry and cast-iron, post-fire, mercantile buildings at the corner of Washington and Milk Streets in what was once the city's newspaper publishing center. Of particular significance are the cast-iron Boston Post Building (BLC Class II), also called the "Birthplace of Franklin", and the granite Boston Transcript Building (BLC Class II). Both of these buildings are works by major 19th century Boston architects, constructed for influential 19th century newspapers.

The Boston Transcript Building at 322-328 Washington Street is a major example of the French Second Empire style and is a prominent element in the Washington Street streetscape. It was designed by Gridley J. Fox Bryant and Louis Rogers and built in 1873.

The Boston Post Building at 17 Milk Street was built in 1874, and is one of only six cast iron commercial buildings remaining in the Central business District. It is significant as an early work by Peabody and Stearns, and as a design unusual in its combination of architectural styles and details. The building commemorated the site of the birthplace of Benjamin Franklin and was the home for over 25 years of the "Boston Post", a leading newspaper of its day.

3.3 Individual buildings

The project also lies within two blocks of many buildings on the National or State Register of Historic Places or

petitioned for listing as a Boston Landmark. At 308 Washington Street is the Old South Meeting House (MA/HL; NRIND; PR; BLC Class 1), 1729-30, Robert Twelves, architect, which is significant as the second oldest extant church in Boston. A fine example of the transition between 17th century and early 18th century Georgian meeting house architecture, its design was widely copied in subsequent New England churches, and, historically, it was the scene of many important political assemblies during the pre-Revolutionary War period.

30 Bromfield Street (1847-1848, BLC Class II) is an outstanding example of a Boston 19th century granite building. Two smooth granite stylized Doric pilasters define the windows in a facade of enormous vitality and simplicity. The attic has bold and unusual dormers with windows facing three directions.

Further along the same street is the Wesleyan Building (NRDOE, BLC Class II), 1870, which, is significant as a rare surviving example of pre-fire granite architecture, the major surviving example of the work of mid-19th century architect Hammet Billings and, historically, the headquarters for many years of the Wesleyan Association's newspaper "Zion's Herald", as well as other Methodist educational and religious affiliates.

The original portion of Filene's department store (NRIND, BLC Class II) is located on the corner of Washington and Summer Streets in the heart of Boston's retail shopping area and at the junction of Downtown Crossing. The building occupies the southwestern portion of the block which is across Franklin Street from the proposed project. This monumental Beaux Arts commercial building was designed by the Chicago architectural firm of Daniel Burnham & Co. It has a terra cotta facade extending along Washington and Summer Streets and the elaborate top story features festooned, round windows. Adjoining it is a three-story modern granite addition along Washington Street, extending to the corner of Washington and Franklin Streets. The original portion of the building is significant as one of the city's best examples of early 20th century Beaux Arts commercial architecture, as the last major work of Daniel Burnham, and as one of five major department stores throughout the world designed by Burnham. It continues to house one of Boston's oldest and largest retail stores.

The Wigglesworth Building (NRIND, BLC Class II) at 89-93 Franklin Street was designed by N.J. Bradlee and W.T. Winslow in 1873. The unusual shape and prominent siting

of this building, along with its fine panel brick detailing, make it an important example of the architecture of the post-fire period. The building is also significant as a work by a major 19th century Boston Architectural firm for a leading dealer in crockery and glassware, Abram French & Company.

The International Trust Company Building (NRIND, LL, BLC Class II) at 39-47 Milk Street is an early (1872-1873) and outstanding example of Beaux Arts office construction by the prominent Boston architect William G. Preston, as well as an early example of proto-skeleton frame construction and the home office of a major New England trust company.

The Old South Building (BLC Class III), 280-306 Washington Street, by Arthur H. Bowditch, from 1902 to 1904, is one of the city's best examples of turn-of-the century Beaux Arts office buildings.

The Jewelers Building (BLC Class III), at 371-379 Washington Street was erected from 1897 to 1905 by the architects Winslow and Wetherell. It is a ten-story office building of terra cotta and brick built in two sections for Samuel Wells and Richard H. Dana.

The buildings along Franklin Street are exemplary of the Commercial Palace type. These buildings were built by Boston merchant families, and among their architects were Gridley Bryant, William Sohier and the firm of Bradlee and Winslow. A number of these buildings are of particular interest;

- o On the north side of the street at 72-76 Franklin Street (BLC Class III) is a finely detailed granite Renaissance Revival post-fire commercial building exemplifying the design versatility of the leading 19th century architectural firm, Cummings and Sears, erected in 1877-1878.
- o The Boston Safe Deposit Building, 1908-1911 (BLC Class II), is a monumental marble-faced early 20th century commercial building notable for its curved front facade, Beaux Arts detailing and pristine condition designed by Shepley Rutan and Coolidge for the Boston Safe Deposit Trust Company.
- o 65-71 Franklin Street (BLC Class III) is located on the corner of Arch Street, one block to the southwest of the proposed project. This neo-Greek, six-bay, brick and stone building is part of a row that once included five buildings but now has only three. It

is notable for its simple "Boston Granite" style of commercial architecture and is also associated with the 19th century dry goods clothing company.

- o The Columbia National Life Insurance Building (BLC Class III) is located at 77-83 Franklin Street, directly across Arch Street from 65-71 Franklin Street. This Second Renaissance Revival office structure rises ten stories to a cornice line that sports animal heads. The building, noteworthy for its irregular shape and distinctive limestone facade, was designed by the well known Boston architectural firm of Park, Thomas and Rice.
- o 85-87 Franklin Street (BLC Class III), adjacent to the Columbia National Life Insurance Building, is a neo-Greek five stories high and notable for its polychromatic brick and sandstone facade and incised line decoration. It is considered an integral element in the streetscape within the Commercial Palace District.

PROBABLE PROJECT IMPACTS

The proposed office building addition (Options A and C) is located on the site so that it becomes a mid-block building when perceived from Franklin, Milk and Washington Streets. This location provides major setbacks from these streets, and consequently the tower is not seen to be contiguous with any of the historic resources previously described, but rather is perceived as a somewhat distance backdrop for the buildings located directly on street.

Furthermore, the location of the proposed office building addition (Options A and C), with its 190-foot setback from Washington Street, minimizes any impact on Old South Meeting House or the Newspaper Row District. The office addition is barely perceived when standing on the corner of School and Washington Streets, and the Meeting House steeple will continue to be silhouetted against the sky (refer to Urban Design Visual Analysis Section). In contrast, the as-of-right scheme, Option B, will make the existing Woolworth portion higher and thus more intrusive than Options A or C.

Shadow impacts from Options A and C do not affect any of the Franklin Street properties or any properties along Washington Street from Summer to Milk Street. Along Bromfield Street, new shadows occur for a short time early in the day on June, 21. The Newspaper Row District Buildings and International Trust Buildings are for the most part already in shadow due to their orientation and the impact from existing surrounding buildings; Options A and C do not introduce any new significant shadow on the facades of those properties. Options A and C introduce new shadow on Old South Meeting House for periods up to approximately two hours per day in the fall, winter and spring months.

The proposed rejuvenation of the existing arcade along Washington and Franklin Streets, an inherent part of the Option A proposal, will utilize materials., texture, architectural details, articulation, and scale breakdown that are sympathetic and consistent with the historic building in the vicinity. As such, Option A will provide a major positive impact to the Commercial Palace District. Options B and C, due to inherent limitations, will not provide this positive benefit.

5.0

MITIGATION MEASURES

The following measures will be incorporated into the project design and development process in order to minimize any adverse effects upon historic resources.

- o A design (option A) that respects the historic district and buildings by utilizing massing, detailing, scale, texture and materials that respond to the design of existing buildings in the project area. This includes the use of stone masonry, setbacks, and an articulated facade to provide an exterior expression that is sympathetic to the architectural character of the district.
- o A design (Option A) that transforms an existing eyesore, the Woolworth store and parking garage, into a building that makes a positive contribution to the Downtown Crossing urban environment.
- o A design that re-establishes a cohesive edge to Arch Street and which encourages pedestrian activity at its street level.
- o A traffic mitigation plan, as described in Part III, which will serve to minimize traffic-related effects on the district.
- o A construction plan, as outlined in Part IV, which will provide for protection for buildings in the district from the effects of noise, dust, vibration and potential changes in groundwater level.

VII. INFRASTRUCTURE

1.0 Introduction

This section discusses the various local infrastructure systems which the project might impact and possible mitigation measures. Specifically the systems include: domestic water, fire service, sewer, storm drain, electric, steam, telecommunication and natural gas. Also due to their close proximity, the MBTA facilities at Washington Street and Franklin Street are also discussed.

The project (Option A) consists of a one-story addition and the complete reconstruction of the exterior facade and arcades of the existing Woolworth's/garage buildings. Also included is the construction of a new office building located over the existing garage entry ramp area between Arch and Hawley Streets.

It is anticipated the new office tower will receive utility service through the installation of new connections on Arch Street. Construction work will be conducted in a manner to insure the least disruption to local traffic. A complete presentation of the proposed project, including infrastructure impacts, will be presented before the Transportation Liaison Committee between the submittal of the DP/EIR and the Final.

In compliance with the Boston Redevelopment Authority's scoping determination, analysis of project impacts on infrastructure has been performed for Option A only. Option A includes 543,540 s.f. office, 134,700 s.f. retail and 374,780 s.f. garage use.

Utility information was provided by the following agencies and utility companies:

- o Boston Fire Department
- o Boston Water and Sewer Commission
- o Boston Edison Company
- o Boston Gas Company
- o New England Telephone Company
- o Boston Thermal Energy Co.

The existing site and utility survey was provided by a plan titled "UTILITY COMPILATION PLAN FOR 350 WASHINGTON STREET, BOSTON, MASS." dated August 10, 1989 by Harry R. Feldman Inc.

2.0 SEWER ANALYSIS

2.1 Description of the Environment

The existing Massachusetts Water Resource Authority (MWRA) sewer collection system contains 230 miles of MWRA pipes linking 5,400 miles of local sewer. The MWRA is responsible for treating wastewater collected from more than 2 million residents and 5,500 industries in 43 communities. The MWRA sewer system is divided into two sub-systems: The South System and The North System, which includes Boston and eighteen other communities.

All sewer flows from the North Metropolitan Sewerage District are treated at the Deer Island treatment plant, which treats an average of 325 million gallons of sewage per day. The Deer Island plant, which commenced operation in 1903, was upgraded in 1968 to it's current capacity. Deer Island will be the site of new treatment facilities which will begin serving the combine north and south regions in 1995. Upon the completion of the Deer Island Facility, the Nut Island facility, which currently treats sewage from the Southern District, will be decommissioned. Primary treatment of sewer flows will be conducted at Nut Island following the construction of new head works there.

The City of Boston's sewer system is operated by the Boston Water and Sewer Commission (BWSC). Since most of the sewers in Boston are combined storm water and sanitary sewers, surcharging may occur during heavy rains. When surcharged, the interceptor pipes that carry the combined flows cannot handle the increased volume due to rainfall events of high intensity. The combined system servicing the site discharges to a regulator on Atlantic Avenue at Milk Street. The regulator allows excess storm water to discharge directly into Boston Harbor through combined sewer overflows (CSO). Theoretically, the overflow is clear storm water while the underflow is the sanitary portion of the combined flow diluted with storm water. Discharge to Boston Harbor occurs through CSO 060 located on Central Wharf.

The project will be served through a proposed connection on Arch Street. Therefore, the sewer system downstream from the service connection is described, including flow capacities for each cross sectional area. The proposed sewer service to the site will connect to an existing 12" diameter combined storm and sanitary sewer located in Arch Street. As shown in Figure VII.2.1, the Arch Street sewer discharges to an existing 20" diameter sewer in Milk Street. Flows then continue along Milk Street in a

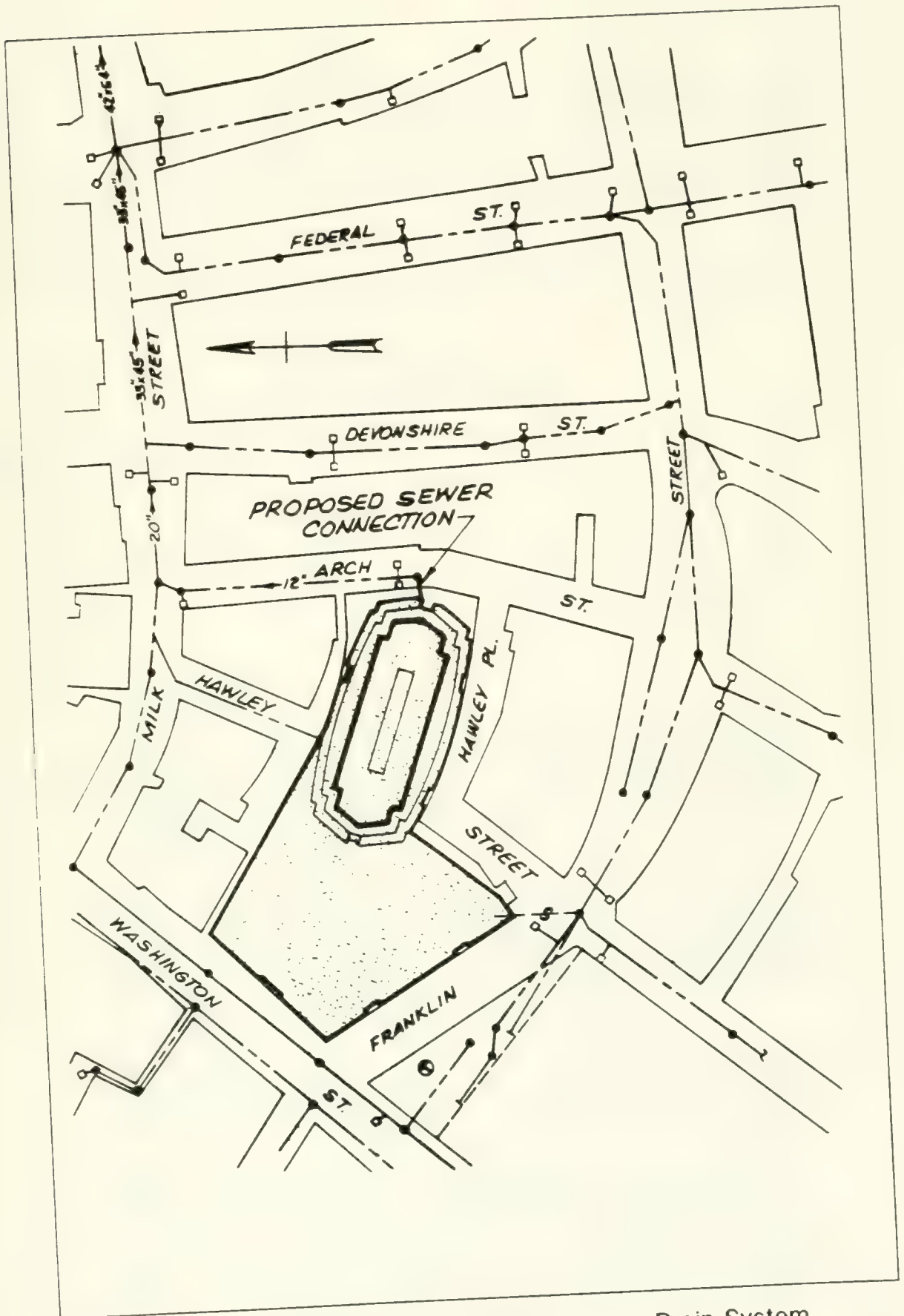


Figure VII.2.1 Proposed Sanitary Sewer/Storm Drain System

33 by 45 inch sewer to a 42 by 54 inch sewer. This sewer connects to a 54 by 57 inch sewer and 66" sewer in India Street. This system connects to the new 72 inch East Side interceptor which flows into the new Boston Main Interceptor. The Boston Main Interceptor connects to the Boston Main Drainage Tunnel of the MWRA at the Columbus Park Headworks.

The capacities of the existing sewer system in Arch Street and subsequent downstream sewers are identified in Table VII.2.1.

TABLE VII.2.1
EXISTING SEWER CAPACITY

<u>STREET</u>	<u>SIZE</u>	<u>INV1</u>	<u>INV2</u>	<u>SLOPE</u>	<u>L(FT)</u>	<u>Q(CFS)</u>	<u>A(SF)</u>
ARCH	12"	18.0	16.1	.008	235	2.8	0.8
MILK	20"	16.1	12.7	.040	85	23	2.2
	33"x45"	11.0	6.1	.016	310	101.2	8.1
	42"x54"	6.1	5.0	.003	360	180.0	12.4

1.2 Project Impacts

Since the Woolworth's operation will remain essentially the same, the only additional impacts are from the proposed 543,500 SF of office space. Flows from the existing Woolworth's building, which includes retail and restaurant uses, will be analyzed separately from the proposed office flows.

The site is estimated to currently generate 18,300 GPD of sewage. The existing sewer service for this flow connects to a manhole in Franklin Street. Flows from Franklin Street connect to Federal Street which in turn connect to Milk Street. Flows from the existing uses will continue to travel their current path.

The proposed office space will be serviced by a new connection on Arch Street as described above. It is anticipated this connection can be constructed without difficulty.

Sewer flows for both the existing uses and the proposed expansion were estimated as indicated in Table VII.2.2.

The total flow anticipated due to the existing uses along with the proposed expansion is estimated to be 60,058 GPD. This total is based on the existing flow of 18,300

TABLE VII-2.2
SEWER FLOWS (1)

<u>LAND USE</u>	<u>EXISTING</u>		<u>PROPOSED</u>	
	<u>SIZE</u>	<u>FLOW (2)</u>	<u>SIZE</u>	<u>FLOW (2)</u>
RETAIL	135,200 SF	6,760	134,700 SF	6,735
OFFICE	0 SF	0	543,500 SF	40,763
GARAGE	880 SPACES	4,400	1,084 SPACES	5,420
RESTAURANT	204 SEATS	7,140	204 SEATS	7,140
TOTAL		18,300		60,058

(1) Title 5 Flow Rates:

RETAIL =5 GPD /100 GPD
OFFICE =75 GPD /1000 SF
GARAGE =5 GPD/SPACE
RESTAURANT =35 GPD/CHAIR

(2) All Flows in Gallons/Day

GPD and the additional flow from expansion of 41,758 GPD. The above sewer calculations are estimates based upon the State Environmental Code (Title V), and actual flows may vary.

2.3 MITIGATION

In accordance with BWSC's desire to separate storm drainage from sanitary flows, the development will provide for separated systems on Arch Street. Further mitigation will include the use of water saving devices, in accordance with the state plumbing code, including low flush water closets and low flow sink fixtures. A continued maintenance program to minimize leakage will be implemented to prevent an increase in flow during the life of the project. Currently, the BWSC is investigating a reduction in CSO discharge through the use of increased interceptor and treatment capacity.

The proposed addition will be served by a new sewer connection on Arch Street. The proposed sewer service will connect to the existing combined 12" diameter sewer. The proposed storm drain would carry the project's roof runoff and Arch Street drainage. This new drain will be connected back into the combined sewer system at Milk Street. Ultimately, as improvements by municipal and private sources are made on Milk Street, the drain could be connected into a separate storm drain system.

3.0 WATER

3.1 Description of the Existing Environment

3.1.1 Distribution

Water for the city of Boston is supplied by the Massachusetts Water Resources Authority (MWRA). The sources are the Quabbin and Wachusett Reservoirs. Current usage is approximately 330 million gallons per day (MGD). Despite continued conservation efforts, demand is expected to increase to 420 MGD by the year 2020. The water supplied by the MWRA is of very high quality. However, in older urban areas degradation of the water quality in the supply system does occur and is generally caused by lead from lead solder used in building plumbing. Current plumbing codes require the use of lead-free solder for new work.

The MWRA jurisdiction terminates at the various metering locations serving the City of Boston. The Boston Water and Sewer Commission (BWSC) has jurisdiction immediately downstream of these meters.

Boston's water distribution consists of five regular service areas and a high pressure fire service. Because these services include individual mains, some installed in the 1800's, the Boston Water and Sewer Commission has focused efforts on replacing mains over 100 years old. The BWSC is also improving existing mains by cleaning and cement lining mains, reducing leakage, and improving metering.

3.1.2 Service Area Descriptions

Boston's water distribution system of five service areas and one high pressure fire service collectively cover about 45.6 square miles (sq. mi.) of Boston's total 47.8 sq. mi. area. The service areas are as follows:

- o the Southern Low service
- o the Southern High service
- o the Southern Extra High service
- o the Northern Low service
- o the Northern High service
- o the High Pressure Fire service

Water for consumption and fire service is supplied by the BWSC through low service lines, high service lines, and a separate high pressure fire service system. The existing building is supplied by both the South Low and the South

High water systems through service connections on Franklin Street near Hawley Street. A separate fire service enters the existing building on Washington Street.

Water main sizes in the streets contiguous to the project site are shown in Table VII.3.1. In 1980 a 16 inch southern high pressure main was installed in Washington Street.

TABLE VII.3.1
WATER ANALYSIS SUMMARY

	<u>WATER MAIN SIZE (INCHES)</u>		
	<u>LOW</u> <u>SERVICE</u>	<u>HIGH</u> <u>SERVICE</u>	<u>HIGH PRESSURE</u> <u>FIRE SERVICE</u>
WASHINGTON STREET		16	12
FRANKLIN STREET	12	12	16
ARCH STREET	8	12	16
HAWLEY STREET (NORTH)		6	
HAWLEY STREET (SOUTH)	8	6	12

3.1.3 Southern Low Service

The BWSC Southern Low Service consists of about 327 miles of water mains including the oldest pipes in the city. MWRA meters number 44, 60, 75, 76, and 77 supply the Southern Low service. This service supplies about 22.7 percent of Boston's area and 36 percent of its residential population including the following neighborhoods: City Proper, South Boston, Northern Dorchester, Allston/Brighton, and Roxbury/Mission Hill.

3.1.3 Southern High Service

The BWSC Southern High Service consists of about 626 miles of water mains. The service was created in the late 1860's to serve towns of higher elevation than Boston such as Roxbury and Dorchester. Connection to the Southern High Service is also used to correct low pressure problems served by the Southern Low. MWRA meters number 5, 6, 7, 8, 9, 51, 71, 94, 120, 147, 167, 188, 195, and 209 supply the Southern High service. The Southern High service supplies about 53 percent of Boston's land area and 51 percent of its residential population. The neighborhoods of Allston/Brighton, City Proper, South Boston, Dorchester, Roxbury/Mission Hill, Jamaica Plain, Hyde Park, West Roxbury and Roslindale

and all of Neponset/Mattapan are served. The Southern High Service also extends to Moon, Thompson and Long Islands.

According to Boston Water and Sewer Commission records a fire flow test conducted in June, 1987 on Washington Street at Summer Street indicates the following data.

Date Tested	JUNE-87
Static Pressure	84 PSI
Residual Pressure	78 PSI
Flow	1256 GPM
Flow at 20 PSI	4500 GPM

Preliminary, review of the above fire flow data indicates more than adequate water supply and pressure is available in the existing system.

3.2 Project Alternatives and Impacts

The project's average daily water demand at Full Build (Option A) is estimated to be on the order of 66,064 gallons per day (GPD). The Peak Daily Rate is estimated to be 110 gallons per minute (GPM) or approximately 200% of the Average Daily rate. Peak fire fighting demands are anticipated to be on the order of 1,500 GPM.

The impacts of water requirements must be considered both on a local basis and on a regional basis. Though determination of the specific capacity of the system at the development site requires hydrant tests adjacent to the site, it may be presumed that the 110 gallons per minute (GPM) required during peak usage periods can be accommodated. It would be necessary to pump the water to provide services in the upper floors. The pressure drop due to a draw of 110 gpm on the water main should be nominal (1 to 2 psi). It is anticipated that the proposed addition will be serviced by new utility connections on Arch Street.

The existing site is serviced by a 16" water main on Washington Street and a 12" water main on Franklin Street. There are a number of low pressure, high pressure, and dedicated high pressure fire service water mains in the streets contiguous to the site. Low pressure services typically supply sufficient water for one piece of fire fighting equipment or 3,000 gpm of auxiliary pumping. A high service hydrant normally delivers 3,000 to 4,000 gpm without pumping. Up to five times that amount can be pumped from a high service line.

As indicated in Figure VII.3.1, the proposed development scheme calls for a new domestic water connection into an 8" diameter main on Arch Street from the existing Southern Low Pressure Service. Fire flows will be drawn from a new connection from the existing 12" Southern High Service also on Arch Street. Availability of water for fire fighting purposes must be verified with hydrant tests in the immediate vicinity. This includes the determination of the residual pressures in the system with an adjacent hydrant flowing open at known rates. Flows can then be plotted versus residual pressure to determine safe and accurate delivery rates for fire protection.

Regionally, water usage must be curtailed to the extent reasonably feasible. Although the estimated 66,064 gallons per day projected use for the site represents approximately 0.02% of the total daily draw from the reservoirs, conservation measures must be implanted to assure efficient and economical water use.

3.3 Mitigation

Several methods will be implemented to reduce the site's water usage. Water conservation measures available for the project, specific to office use include:

1. Water saver water closets: 1.6 gallon flush water closets;
2. 1 1/2 gpm flow controllers on domestic hot and cold water connections to lavatories;
3. A program of leak prevention and maintenance;

Implementation of these and other measures could result in a significant reduction in water demand and associated energy use.

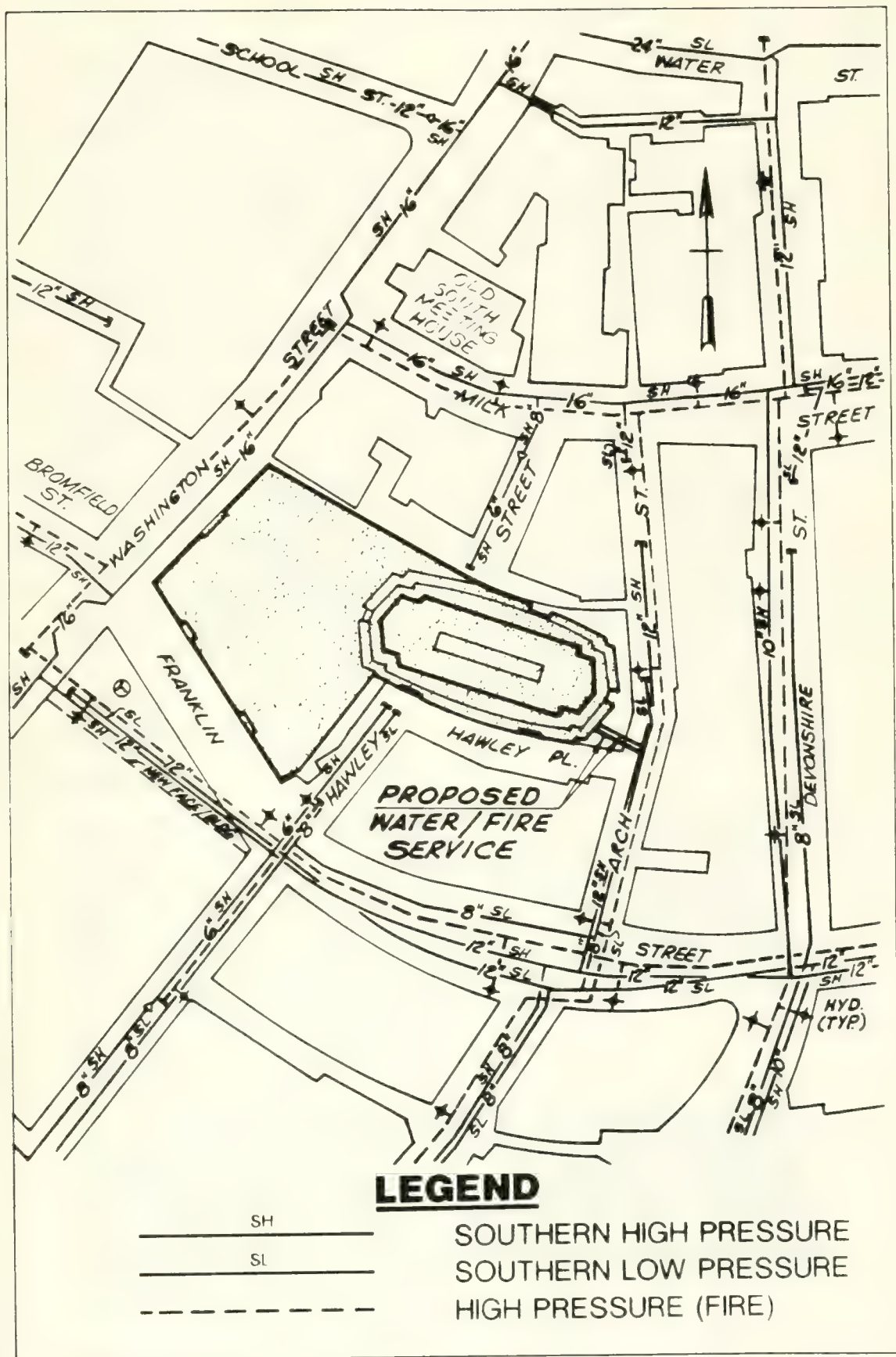


Figure VII.3.1 Domestic Water & Fire Service

4.0 ENERGY SUPPLY AND DEMAND

4.1 Introduction

The existing energy systems within the site vicinity include electrical, telecommunications, natural gas and steam. The existing structures are connected to these systems located in the surrounding street network. Service to the proposed project will be provided by new connections from existing sources in Arch Street. Typically, improvements and upgrades to these systems are conducted by the private utility companies.

As noted in previous sections, several other large projects are in the planning stages within the immediate study area. Providing service for these new developments may require a co-ordinated upgrade of existing utility distribution systems. If upgrading of an existing system is necessary due to limitations of the distribution network or inability to meet demand requirements, then a cost/benefit study would be performed by the Utility. The cost/benefit study would examine the cost of the proposed upgrade versus the pay back received through increased revenues.

4.2 Existing Systems

4.2.1 Natural Gas

The Boston Gas Company supplies low pressure gas to Boston's downtown area through a network of gas lines located in the streets surrounding the project site. The existing building is serviced by a 3" diameter main on Hawley Street which is connected to a 6" diameter main on Milk Street. These gas lines are interconnected with other lines in the area to form distribution loops, which allow gas to be fed from multiple routes.

4.2.2 Electric

The Boston Edison Company supplies the downtown area with electrical power. According to information supplied by Boston Edison, Substation No. 514 located at Kingston Street supplies the site and surrounding area through a local distribution network operating at 13.8 kV. Two silicon transformers with a rating of 1500kVA, 277/ 480 volts are located within the existing Woolworth structure.

4.2.3 Steam

The Boston Thermal Energy Corporation (BTEC) provides the downtown area with steam service from the steam generating plant located on Kneeland Street near Atlantic Avenue. BTEC distributes steam from the generating plant to the streets of downtown Boston through underground steam lines.

The Kneeland Station is used to supply the base load for BTEC's City-wide distribution system. This station has a generating capacity of 1.1 to 1.2 million lbs/hr and operates on a continuous basis, 365 days a year.

Currently, Boston Thermal Energy Corporation supplies steam to the existing building. Steam is used for heating and cooling the building.

4.2.4 Communications

The New England Telephone Company provides basic service to the surrounding Boston area. The existing building receives telephone service from Franklin Street. The surrounding downtown area is supplied by an ample telephone conduit consisting of six 4 inch duct on Franklin Street, sixteen 3 1/2 inch conduit on Washington Street, one 3 inch duct on Hawley Street and one 3 inch duct in Arch Street.

The central office facilities located at Harrison Central Office provide existing service. The existing network of conduit in the downtown area are adequately maintained. Some fiber optic technology is used in the downtown area specifically, along Washington and Franklin Streets.

4.3 Impacts

4.3.1 Natural Gas

According to the Boston Gas Co., an adequate supply exists for the proposed development. A more detailed analysis is currently in progress with considerations of other large projects scheduled for the downtown area.

The proposed building will utilize natural gas to satisfy heating and cooling demands. An estimate of gas usage based on Option A is 19,000 MCF annually.

4.3.2 Electric

The anticipated electric demand is approximately 4.5 megawatts per day. The Boston Edison Company believes an adequate supply exists to meet the specific requirements of the project. Additional vault space will be required. Options for increased vault space include construction of a new vault or the upgrading of the existing vault inside the Woolworth structure. Electric service to existing facilities will be maintained at all times. This will be accomplished by either maintaining existing facilities in place, temporarily relocating facilities during construction, or replacing existing facilities with new facilities built in conjunction with the proposed project.

4.3.3 Steam

If the proposed development utilizes steam as an energy source, preliminary estimates indicate approximately 1500 tons daily will be required. A more detailed estimate of steam demand will be conducted at a later date.

Boston Thermal Energy Corporation representatives have stated that the existing peak loads on their generating system are approximately 35-40% of capacity during the summer cooling peak and 70-75% of capacity during the winter heating peak. Initial evaluations also indicate that the steam distribution system in the project area has adequate capacity to serve the proposed project.

Discussions with Boston Thermal Corporation indicate ample supply of steam exists for the proposed project. The current service to the existing building will likely be adequate to supply the above demand.

4.3.4 Communications

The proposed office tower will be serviced by the new NYNEX facility on Franklin Street. According to New England Telephone personnel, both conventional copper wire and fiber optic cable will be used to service the proposed office tower. Service connections can be made on Arch Street or Franklin Street. Two separate entry connections are recommended for reliable service.

4.4 Mitigation

According to discussions with utility companies, ample supply is available for electric, gas, telephone, and steam requirements. As required by the Commonwealth of Massachusetts Energy Code, design of building components and installation of energy efficient equipment will reduce the impact on the existing energy systems.

The following design and construction measures will be used to conserve energy: double glazed windows, high-efficiency motors to drive all mechanical equipment within the office tower, lighting systems which utilize energy efficient lamps and ballast, and insulation of all chilled and hot water system components.

4.4 Massachusetts Bay Transportation Authority

4.4.1 Existing System

Due to the close proximity of the Massachusetts Bay Transit Authority's (MBTA) Downtown Crossing station to the proposed project, utility impacts to the station are considered. The Franklin Street entrance to the Downtown Crossing Station is directly across from the pedestrian entrance to the existing garage. The entrance is connected to the Orange Line platform by a tunnel under Franklin Street. The subway platform is located just below Washington street. The station has been designed in accordance with the the development of the Downtown Crossing Auto Restricted Zone. This construction included the relocation of Franklin Street to its present alignment.

Existing utilities including water, combine sewer, gas, electric, steam, and telephone remain active in the original Franklin Street right-of-way. Recently sewer and telephone conduit was place within the new Franklin Street location.

4.4.2 Impacts

No utility impacts are anticipated to the MBTA Station. Currently plans for the proposed project call for the office tower location adjacent to Arch Street. The utility connections servicing the project will be constructed along Arch Street. No utility connections or construction impacts to the neighboring MBTA Station are anticipated.

1.0. PROJECT NAME

Forty Franklin

1.1. Description of Project

Following more than four years of architectural, engineering, and economic studies, Old State Management Corp. is proposing the construction of Forty Franklin. As designed, this project proposes to add office space above the structure which currently houses the F.W. Woolworth store and a parking garage in Downtown Boston. Based upon a feasibility study of three development scenarios, the proponent is seeking approval of the design referred to as "Option A".

Option A consists of the complete reconstruction of the exterior facades and arcades of the existing Woolworth Store/Garage building located at Washington, Franklin, Hawley, and Arch Streets in Boston, MA, together with the construction of a new office building located over the existing garage ramp area between Arch and Hawley Streets. The new office building will be twenty-five stories high above the existing building, and will contain approximately 543,000 gross square feet.

The existing 880 vehicle garage will be modified by closing the entrance and exit from Arch Street, and up to 204 parking spaces will be added. Hawley Street will be reconstructed from Franklin Street to Milk Street and will serve as the only entrance and exit to the garage. A key element of this reconstruction will be the removal of the existing garage ramp, thus providing an unobstructed connection between Franklin and Milk Streets.

Option B, the as-of-right (enhanced) program, provides the addition of 143,000 gross square feet of office space in three floors to be built above the existing building. The parking capacity remains unchanged from the existing condition.

Option C is a design that is in general conformance with the current height and FAR limits for a Planned Development Area on the site. This option consists of an office building addition comprised of a single-story covering the existing building foot print plus an eighteen story office addition above the existing garage ramp area. Total proposed new gross office area is approximately 469,000 square feet and the garage capacity would be increased by approximately 24 parking spaces.

1.5 Architects

Shepley Bulfinch Richardson and Abbott, Inc.
40 Broad Street
Boston, MA 02109

Jan Heespelink, AIA
(617) 423-1700

Crang & Boake Inc.
85 Moatfield Drive
Don Mills, Ontario, Canada M3B3L6

Colm Murphy
(416) 449-1203

1.6 Construction Consultant

Beacon Construction Company
Three Center Plaza
Boston, MA 02108

David Lash
(617) 742-8800

1.7 Structural Engineer

Carruthers & Wallace Ltd.
90 Eglinton Ave. W.
Toronto, Ontario, Canada M4R2E4

John Springfield
(416) 489-0052

1.8 Geotechnical Engineer

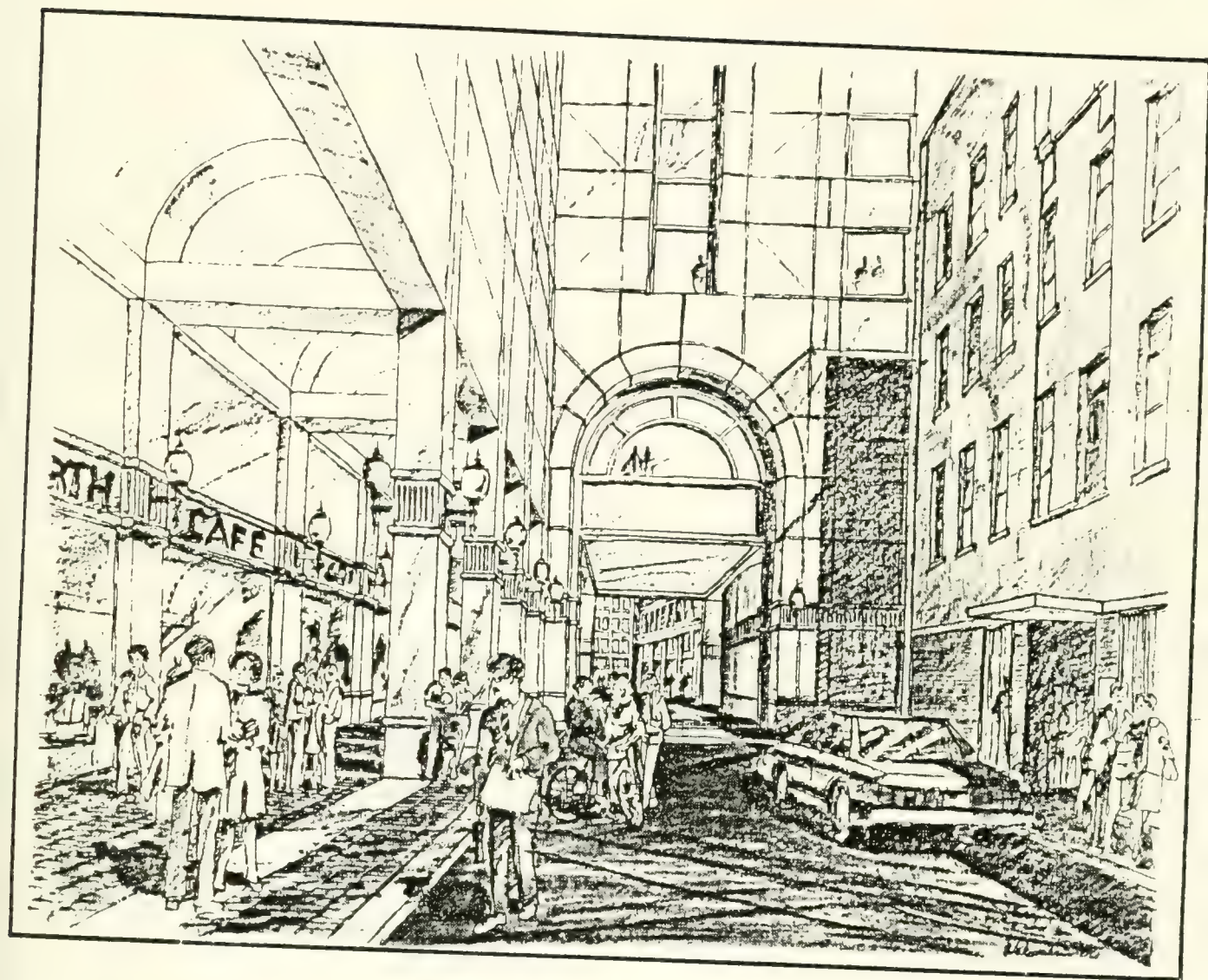
Haley & Aldrich, Inc.
58 Charles Street
Cambridge, MA 02141

Edmund Johnson
(617) 494-1606

APPENDIX A

BRA/MEPA CORRESPONDENCE

Project Notification Form
BRA Scoping Decision
Revision to BRA Scope
Environmental Notification Form
Secretary's Decision and Scope of Draft EIR
Public Comments on ENF
Distribution List for DP/EIR



Project Notification Form

FORTY FRANKLIN

☐ OCTOBER 1988 ☐

October 18, 1988

Project Notification Form

FORTY FRANKLIN

DEVELOPER:

Old State Management Corp.
Exchange Place
53 State Street
37th Floor
Boston, Massachusetts 02109

OWNER:

Frank-King Associates Limited Partnership
Kingston Investors
Odyssey Partners
Nynex Properties Company
Harold A. Theran
Austin L. Cable

LEGAL COUNSEL:

Kopelman and Paige, P.C.
Suite 1000
77 Franklin Street
Boston, MA 02110

ARCHITECT:

Crang & Boake/Shepley Bulfinch Richardson and Abbott
40 Broad Street
Boston, MA 02109

ENVIRONMENTAL CONSULTANT:

H.W. Moore Associates, Inc.
112 Shawmut Avenue
Boston, MA 02116

**BOSTON REDEVELOPMENT AUTHORITY
DOWNTOWN ZONING INTERIM PLANNING OVERLAY DISTRICT
PROJECT NOTIFICATION FORM**

1. SUMMARY

A. Project Identification

- 1. Project Name**
Forty Franklin Street

- 2. Address/Location**
2-40 Franklin Street; 342 Washington Street; 21-49 Arch Street
35 Hawley Street
Boston, Massachusetts

- 3. Property Owner**
Frank-King Associates Limited Partnership
Kingston Investors
Odyssey Partners
Nynex Properties Company
Harold A. Theran
Austin L. Cable

- 4. Developer**
Old State Management Corp.
Exchange Place
53 State Street
37th Floor
Boston, Massachusetts 02109

- 5. Developer's Agent if Applicable**
Old State Management Corp.

- 6. Architect**
Crang & Boake/Shepley Bulfinch Richardson and Abbott
40 Broad Street
Boston, Massachusetts 02109

- 7. Legal Counsel**
Kopelman and Paige, P.C.
(Donald G. Paige and Joel B. Bard)
Suite 1000
77 Franklin Street
Boston, Massachussts 02110

- 8. Estimate Commencement/Estimated Completion**
As soon as permitted/30 months from start of construction.

- 9. Approximate Total Development Cost**
\$170,000,000

B. Narrative Project Description (Describe the site and the design and development programs):

The building concept submitted with this proposal is the product of over four years of architectural, engineering, and economic studies commissioned by Old State Management Corp. The architectural and engineering studies have been carried out by the firms of Crang & Boake, Inc., and Shepley Bulfinch Richardson and Abbott.

The current owners purchased this building in 1985 with the particular purpose of redeveloping the site and improving the countenance of the current structure. The developers' aspirations (which have remained constant throughout this process) were to upgrade the facade of the Woolworth building, conceal the parking structure, and unify the old and new elements so that they will read as a single building.

For more than four years, the developers have been working with their architects and various City officials to find a conceptual solution to the unique problems presented by this site. One point on which there has been full agreement is that the appearance of the existing structure needs improvement. The project which will make this possible, however, must be built with a minimal disruption to the existing tenants, F. W. Woolworth and Meyers Parking. The site and location of the site require that the project be sensitive to the scale and needs of the Downtown Crossing shopping district at Washington Street and the Financial District at Arch Street. With respect to the shopping district, the solution presented here includes many significant urban design improvements to the existing building and streetscape. After discussion with City officials, the office building component has been moved to the Arch Street part of the site, thereby minimizing impacts on the shopping district and nearby sites of significance. In this way, the project will provide a seamless transition between the shopping and financial districts.

The proposed project consists of a one-story addition and the complete reconstruction of the exterior facade and arcades of the existing Woolworth/garage building located at Washington, Franklin, Hawley, and Arch Streets, plus the construction of a new office building located over the existing garage entry ramp area between Arch and Hawley Streets.

The new office building will be twenty-two stories high and will contain 500,000 usable square feet with a typical floor plate of approximately 25,000 square feet at the lower floors and 20,000 sq. ft. at the upper floors. At the base of the office building, a floor of approximately 60,000 square feet will cover the entire top floor of the existing structure and act as a transfer floor between the garage and office space. The garage will be modified by closing the entrance and exit from Arch Street and, possibly, by filling in the existing lightwell. Hawley Street will be reconnected to form a through street from Franklin Street to Milk Street and will serve as the only entrance and exit to the garage.

The existing three-level retail space occupied by Woolworths will remain essentially unchanged internally. The arcades, show windows, entrances, and exterior facade shall be completely redesigned and reconstructed in order to enhance the Downtown Crossing area and create a unified project.

A strip of BRA-owned land (4863 sq. ft.) will be required to complete the Arch Street entrance to the building. This land was taken by the BRA some time ago for a street widening project which was abandoned. The office tower portion of this project utilizes this parcel to transfer its structural members to grade from ten stories above. This transition leaves a volume of space which is presently utilized as mechanical space. It is possible this space could be transformed to rentable floor area for users in need of 4,000 sq. foot floors. It is the developers' thought that this space may be offered at greatly reduced rates to City-designated non-profit or cultural organizations.

The design for the project is derived from its site context and from the larger influence of the downtown area. Major features include:

- A massing arrangement that locates the office building in the most easterly portion of the site where it will be part of the Financial District and serve as a link to the Downtown Crossing area.
- A new, mid-block walkway between Arch Street and Hawley Street, creating a strong pedestrian connection between the Financial District and Downtown Crossing areas.
- Reconnection and rejuvenation of Hawley Street, thus transforming its present unappealing character and overpowering scale.
- Use of traditional masonry as the dominant facade material to create a strong “Boston” image.
- Complete renovation of the arcade and other street-level areas, providing a more attractive pedestrian environment.
- A major office building entrance on Arch Street, filling the present gap in the streetscape and replacing the present unsightly garage entrance.
- Elimination of parking garage traffic on Arch Street, thus alleviating congestion on a narrow street.
- A 136-foot high base that conforms to the existing building massing on Washington, Franklin, and Arch Streets.

This project will be undertaken in the face of extensive site and construction difficulties. One such challenge is the remaining lease term with existing tenants making conventional construction virtually impossible. Constructing foundations beneath, and bearing columns through, the leased areas will be exceedingly difficult, but will employ successfully proven techniques. Tenants must be allowed to remain in operation during the entire construction with the provision that any space disturbed during construction must be returned to pre-construction condition or better as rapidly as possible. Tenants must also be compensated for reduced business.

The developers will be equally concerned with maintaining vehicular and pedestrian traffic flow around and to the site. Considerable extra cost for coordination of construction at the site will be required to minimize disturbance of existing traffic.

In summary, the developer proposes to remove an architectural eyesore and replace it with a building which will strengthen the identity of Downtown Crossing by improving the facade and streetscape of the existing structure and add office space to the Financial District. The building will also contribute to the city skyline in an exciting way.

The importance and location of this site warrants a world class building. The difficulties and drawbacks of this site create challenges few developers would choose to contend with. This project proposes a bold and innovative solution to these problems. We strongly believe this building will greatly benefit the City of Boston.

C. List Federal or State Agencies from which permits or other actions have been or will be sought.

DEQE/Division of Water Pollution Control
Sanitary Sewer Connection Permit

DEQE/Division of Air Quality Control
Fossil Fuel Utilization Permit

Mass. Water Resources Authority
Industrial User Discharge Permit

Federal Aviation Administration
Notice of Construction or Alteration

- D. List any zoning relief required for this project (including any zoning variances, exception, conditional use permit, interim planning permit, zoning map or text change, or Development Impact Project Agreement):

Interim planning permit for Downtown IPOD. Variances for height, FAR, parapet setback, loading docks, side and rear yards, open space, as necessary. Boston Civic Design Commission Review, if necessary. Development Impact Project Agreement.

- E. List any governmental agencies or programs from which financial assistance for this project is being sought:

None

II. PROJECT DESCRIPTION

- A. Attach map showing location of project; survey if applicable; site plan and architectural rendering if available.

Attachments: Site Location Plan
 Grade Level Plan
 Transfer Floor Plan
 Typical Lower Floor Plan
 Building Section
 Franklin Street Arcade
 Hawley Street Connection
 Aerial Perspective Looking South

- B. Dimensions

Building Height:	at street wall (Washington Street)	136'-6"
	Total Height	399'
Square Footage of Lot		63,660
Floor Area Ratio	(without garage)	10.7
	(with garage)	15.9

- C. Uses - List the Current and Proposed Uses and the Square Footage for each use:

<u>Current Use</u>	<u>Square Footage</u> (F.A.R. Definition)
Retail	134,700 sq. ft.
Parking Garage	335,000 sq. ft. (355,000 sq. ft.; with increased capacity)
<u>Proposed Uses</u>	<u>Square Footage</u> (F.A.R. Definition)
Office	545,000 square feet (500,000 rentable)

III. ASSESSMENT OF DEVELOPMENT REVIEW COMPONENTS

(Note anticipated direct and indirect environmental impacts, if any, for each review component. If significant adverse impact is considered likely to result, please explain. Positive impact may also be noted.)

A. TRANSPORTATION COMPONENT

1. Traffic Management Element

From a transportation perspective, this project is located on a key site. It contains a major commercial parking facility in the heart of the Downtown Crossing shopping district, and is well served by public transportation, with immediate access to the MBTA's rapid transit network as well as several local and express bus networks.

According to the Institute of Transportation Engineers (ITE) publication, "Trip Generation, An Informational Report" (4th Ed., 1987), the proposed project can be expected to generate as many as 800 trips to and from the site during the morning commuting peak hour, and 749 trips during the afternoon. It should be noted that a new entrance to the MBTA's Washington Street Red and Orange Line stations is located across the street from the site, at the corner of Washington and Franklin Streets. In addition, the Park Street and State Street stations are within a short walking distance. Therefore, it is likely that a significant number of peak hour commuting trips will be diverted from the roadway network.

A detailed analysis of anticipated impacts will be included within a Transportation Access Plan (TAP) that will be prepared by H.W. Moore Associates, in cooperation with the Boston Transportation Department. In addition to providing the information normally required, the TAP will include a detailed analysis of the existing parking garage's capacity and demand.

The TAP will also analyze the proposed relocation of the access/egress drives for the garage, and the impact resulting from the opening of Hawley Street between Franklin and Milk Streets.

Additionally, the TAP will analyze the trip reduction possible with the implementation of ridersharing and vanpooling programs, as well as the provision of bicycle storage facilities.

2. Parking Management Element

The existing parking garage will remain open throughout the construction phase. In addition, there is a possibility that the 888 public parking spaces might be increased by 49 to 97 additional spaces. As noted above, the TAP will analyze the garage's existing capacity and usage, as well as the impacts from shared use by the general public and the new building's tenants.

3. Construction Management Element

Standard methods will be utilized to minimize effects on the surrounding area from truck

movements, deliveries, and construction employee parking.

B. ENVIRONMENTAL PROTECTION COMPONENT

1. Wind

Wind impact to the pedestrian environment is mitigated by the location and setbacks of the office building. There will be little or no effect on pedestrian - level winds at the most important pedestrian area, the corner of Washington and Franklin Streets, and the project will not significantly affect pedestrian-level winds along the rest of Franklin, Washington or Milk Streets. Pedestrian-level winds along Arch and Devonshire Streets will be increased very modestly. The proposed addition will probably increase the ventilation in the existing garage for all but easterly storm winds.

2. Shadow

Preliminary analysis indicates no significant additional shadow on the public open space in front of the Boston Five Cent Savings Bank at Washington and School Streets. There is no impact to the important nearby shopping corner of Washington and Franklin Street. Shadow effect at street level at other locations is minimal since most new shadows from the office building addition fall across existing rooftops or areas that are already in shadow.

3. Daylight

Most of the project site will be only one story higher than the existing building and, thus, will provide negligible obstruction to daylight. The new office building is set back and is oriented in such a way as to minimize daylight obstruction.

4. Solar Glare

Materials used for Forty Franklin will be primarily stone masonry with non-reflecting glass. Therefore, there will be negligible solar glare effects from the project.

5. Air Quality

Due to the minimal increase in traffic volumes anticipated, increases in microscale Carbon Monoxide emissions are not expected to be significant. In addition, the proponent will use all appropriate mitigating measures to minimize construction dust impacts.

6. Water Quality

The proposed project calls for the construction of an office building above an existing structure. No change in existing drainage patterns, or rate of runoff, is anticipated.

7. Flood Hazard/Wetlands

The project area is not located in a flood hazard area, nor are there any wetlands on site.

8. Groundwater

Soil boring logs for the existing 1967 development indicate the water table at approximately 17 feet below Arch Street, that is, at elevation 10.00. The existing trucking area is at elevation 13.00. No new construction below this elevation is contemplated. Therefore, no interference

with the watertable is foreseen.

9. Geotechnical Impact, Including Subsoil Conditions

Soil borings for the existing building generally indicated stiff clay below fill, followed by sand, till and shale bedrock. At Arch Street, bedrock was encountered at elevation minus 34 ft.

Further soil borings will be undertaken when the locations of new foundations are finalized. Geotechnical considerations will include the effect of construction procedures on adjacent structures. Consideration will be given to the use of deep foundations units, the installation of which will not cause vibration disturbance.

10. Solid and Hazardous Waste

The project will generate approximately 5,000 lbs/day of solid waste (1 lb/100 square feet).

With respect to toxic waste on site, a 21E Site Investigation will be performed by Haley and Aldrich. The proposed project calls for the construction of an office building and will not generate hazardous materials.

11. Noise

Although construction of the project is expected to result in temporary noise impacts from use of heavy equipment, measures will be taken to mitigate the impacts.

12. Construction Impact

Construction activities will include demolition of the existing Hawley Street ramps into the garage, construction of temporary and permanent building structures, and reconstruction of Hawley and Arch Streets. A Construction Management Plan will be developed with the City to address logistics and safety features necessary to minimize disruption to the surrounding area. Since almost no excavation work will be required, the construction impact will be substantially less than would normally be anticipated for a project of this scope.

13. Rodent Control

Rodent control will be undertaken throughout the construction of the project.

C. URBAN DESIGN COMPONENT

1. Architectural Compatibility

The massing and architectural expression of Forty Franklin is designed to be compatible with the surrounding urban context. The existing nine-story building on the major portion of the site contained by Washington, Franklin, and Hawley Streets will receive a one-story addition, and its height will remain approximately equal to the neighboring buildings of Downtown Crossing. The new office building will face its narrow front on Arch Street and extend into the eastern part of the site, over the existing garage entrance and circular ramp. In this location the office building will be perceived as a transitional, mid-block building on the edge of the Financial District, rather than as a central element of Downtown Crossing. Exterior walls of the entire building will be sensitively detailed, using stone masonry as the dominant material. Cornice lines and surface articulation of neighboring buildings will be respected by the massing and facade treatment.

2. Relationship to Subdistrict Urban Design Features

The project adds and improves pedestrian routes, enhances the pedestrian environment (particularly, by rebuilding the arcades and reconnecting Hawley Street), provides a base massing in keeping with the scale of the surrounding retail area, and locates the office building such that it is set back away from the retail area and adjacent to the Financial District. By bringing the office building facade down to Arch Street, the project fills an unsightly gap in the street edge.

3. Quality of Pedestrian Environment

The pedestrian experience on Washington and Franklin Streets will be enhanced by the proposed renovation of the existing arcades. New masonry exterior walls, show windows, lighting and paving will be designed to create an inviting, human-scaled environment appropriate for the area and its users. Similarly, the Hawley Street arcade will be rejuvenated by complete reconstruction with new materials and systems, and the proposed reconnection of the two existing “dead ends” of Hawley Street will recreate it as a true street, eliminating its present back-alley character. A new pedestrian connection, located between the Hawley Street arcade and Arch Street, will provide a new pedestrian route from Downtown Crossing to the Financial District.

On Arch Street the existing garage entrance and exit will be eliminated and replaced by the new office building entrance lobby and pedestrian walkways. Vehicular traffic on the street will be reduced, and Arch Street will be strengthened and revitalized as an important part of the Financial District.

4. Consistency with Established Design Guidelines

In designing Forty Franklin, the Architects have considered the Boston Redevelopment Authority’s framework study for the area. Meetings were held with BRA staff during the project’s evolution, and the proposed massing is responsive to concerns expressed regarding earlier proposals. The project team will continue to work with the BRA and other public agencies as the design process continues. The office building’s height is higher than currently allowed by zoning but is consistent with that allowed for many recent Financial District buildings; the lower mass on Washington Street and Franklin Streets is lower than permitted by zoning.

D. HOUSING COMPONENTS

No housing is proposed for this site nor is any existing housing displaced by the project. The proposed linkage payments may be used to finance the construction of housing in Chinatown.

E. HISTORIC RESOURCES COMPONENT

1. Impact on objects, structures, buildings, sites, or districts of historic, architectural, archeological, or cultural distinction

The project is located adjacent to the Newspaper Row District listed in the National Register of Historic Places; none of the buildings in this district is under consideration for designation as a landmark. The project is also adjacent to 64-70 and 72-74 Franklin Street. Under the proposed Historic Preservation article of the Boston Zoning Code, these buildings are considered Category III Historic Buildings. The project does not directly affect any of these adjacent buildings.

Because of the location and orientation of the office building addition, the project does not directly affect the most significant historic building in the area, the Old South Meeting House, which is located on Washington and Milk Streets, about 160 feet northeast of the project boundary.

2. Landmark Status

The existing building is not rated and is not considered an historic building.

F. INFRASTRUCTURE SYSTEMS COMPONENT

1. Anticipated water consumption, if known:

It is estimated that the proposed building will consume approximately 41,250 gallons of water per day (110% of sewage use).

2. Anticipated electricity consumption, if known:

It is estimated that the proposed building will consume approximately 4.5 megawatts of electricity per day.

3. Anticipated sewage generation, if known

It is estimated that the proposed building will produce approximately 37,500 gallons of sewage per day (75 gal/1000 s.f.).

4. Anticipated energy requirements, if known:

Cooling	1,600 tons daily
Heating	12,000 MBH daily
Natural Gas	19,000 MCF annually

IV. COORDINATION WITH OTHER GOVERNMENTAL AGENCIES

A. Boston Civic Design Commission Review:

The proposed project falls within the definition of "Large Scale Development Projects" under Article 28 of the Boston Zoning Code. As such, this project is subject to the review of the Boston Civic Design Commission unless a variance is granted by the Board of Appeals because of the BCDC's current status.

B. Boston Landmarks Commission Review:

None.

C. Massachusetts Environmental Policy Act Requirements:

An ENF will be filed.

D. Architectural Access Board Requirements:

The project will be designed to comply with AAB requirements.

E. Other:

Refer to I.C.

V. PROPONENT'S CERTIFICATION:

This form has been circulated to all agencies and persons as required by Boston Zoning Code, Article 31, Section 31-5 (1).

Proponent:



Dan Hart, Executive Vice President

4/18/88
Date

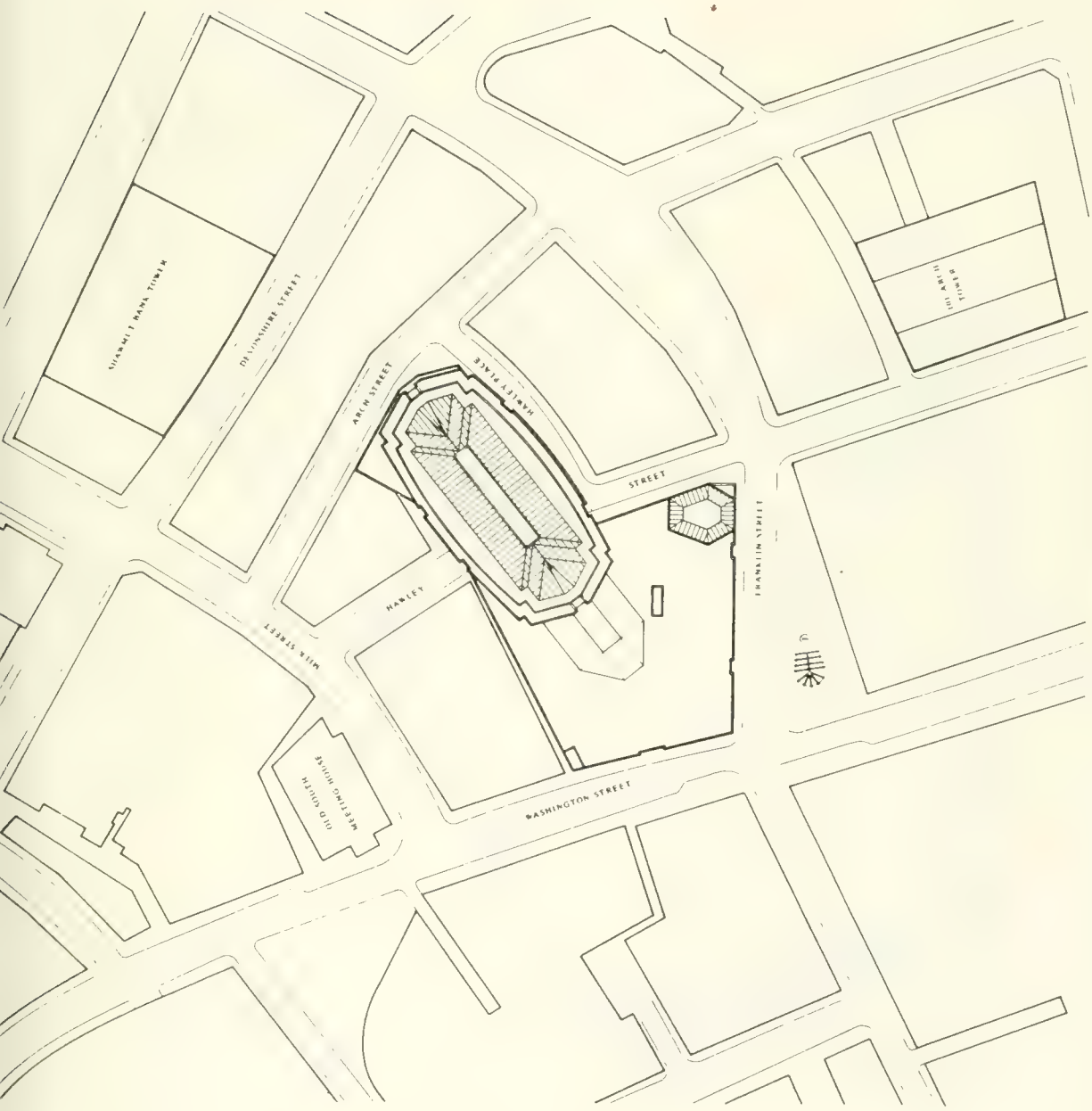
Harold A. Theran, President
Old State Management Corp
Exchange Place
53 State Street
Boston, MA 02109
(617) 426-3362

Person Preparing:


Joel B. Bard

10/18/88
Date

Kopelman & Page, P.C.
Attorneys at Law
Suite 1000
77 Franklin Street
Boston, MA 02110
(617) 451-0750



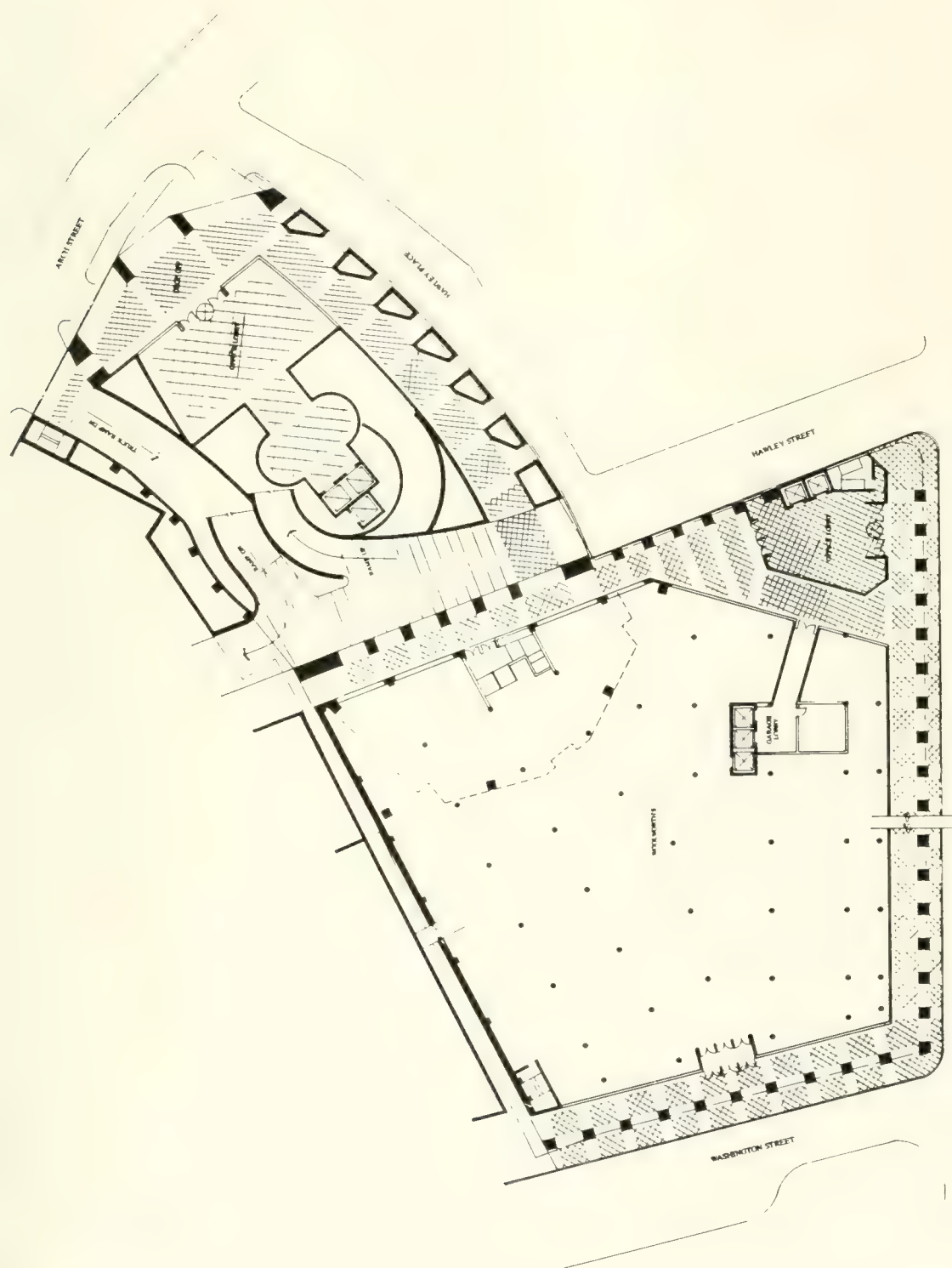
SITE PLAN

SCALE 0 10 25 50 100

OCT. 12, 1988

FORTY FRANKLIN

OWNER: FRANK-KING ASSOCIATES L.P. DEVELOPER: OLD STATE MANAGEMENT CORP.
 ARCHITECTS: CRANG AND BOAKE INC. & SHEPLEY BULFINCH RICHARDSON AND ABBOTT



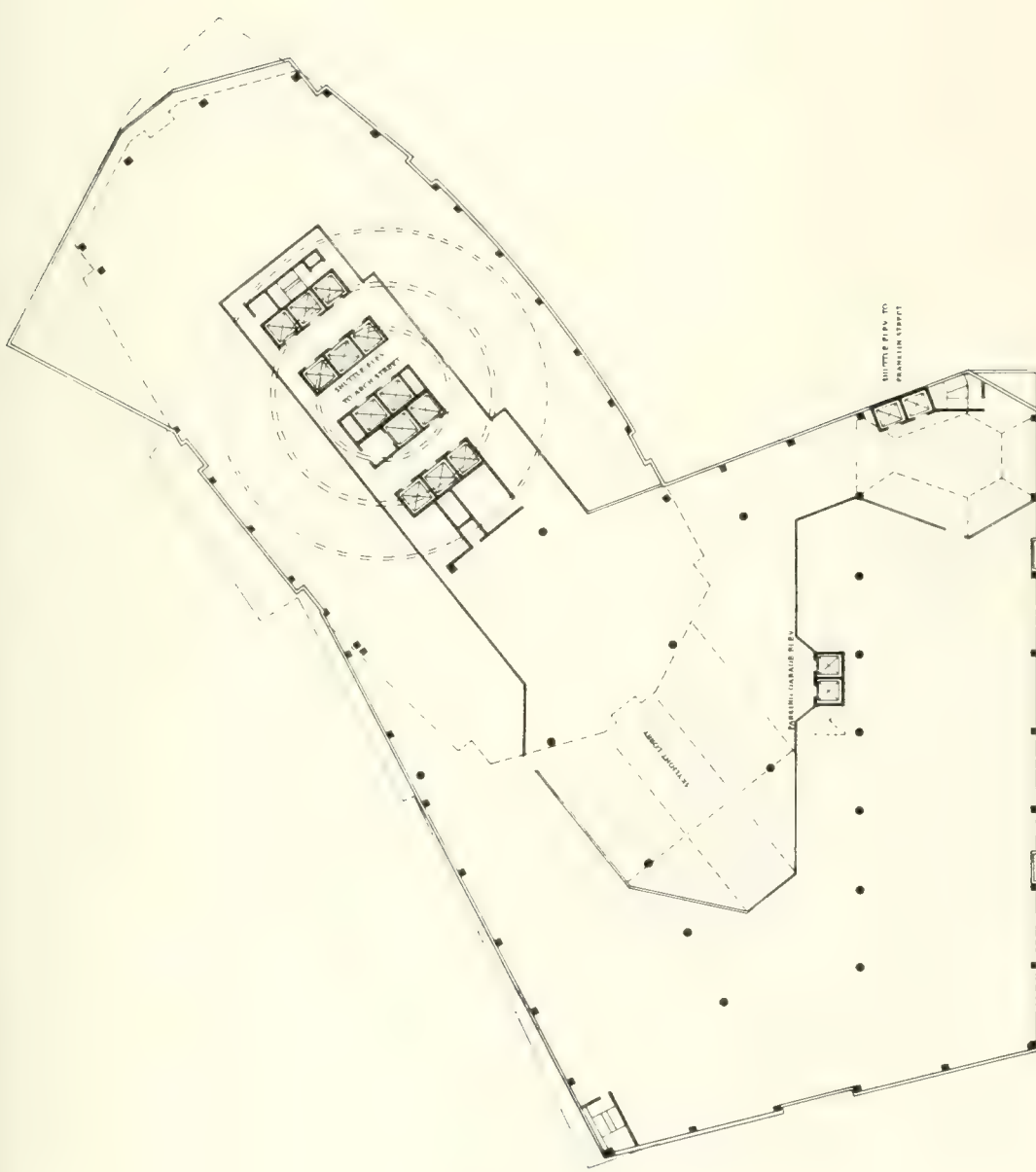
GRADE LEVEL

SCALE 0 5 15 40

FORTY FRANKLIN

OWNER: FRANK-KING ASSOCIATES L.P. DEVELOPER: OLD STATE MANAGEMENT CORP.
 ARCHITECTS: CRANG AND BOAKE INC. & SHEPLEY BULFINCH RICHARDSON AND ABBOTT

OCT. 12, 1988



TRANSFER FLOOR PLAN

SCALE 0 5 15 40

FORTY FRANKLIN

OWNER: FRANK-KING ASSOCIATES L.P. DEVELOPER: OLD STATE MANAGEMENT CORP.
 ARCHITECTS: CRANG AND BOAKE INC & SHEPLEY BULFINCH RICHARDSON AND ABBOTT

OCT. 12, 1988

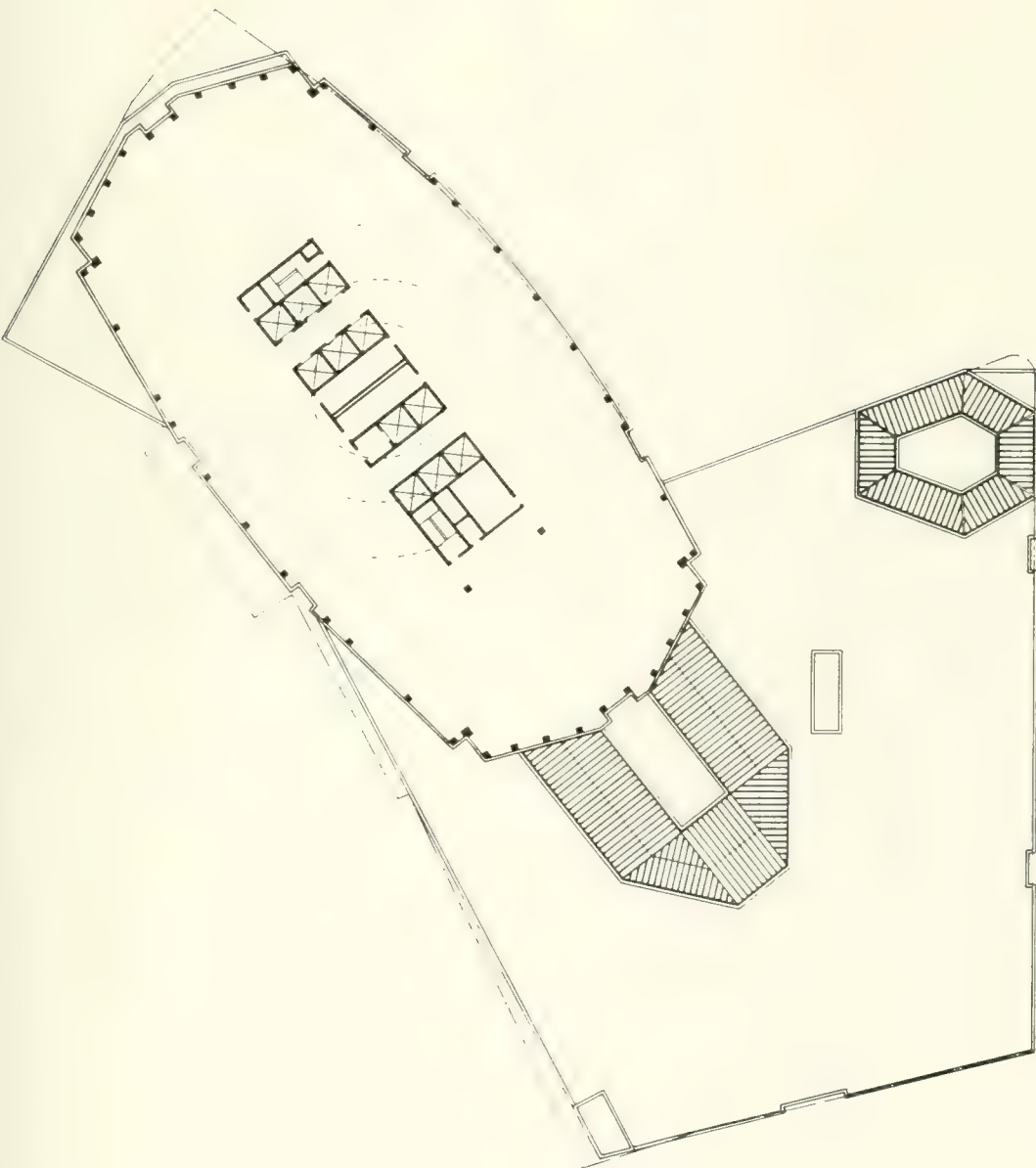
TYPICAL LOWER FLOOR PLAN

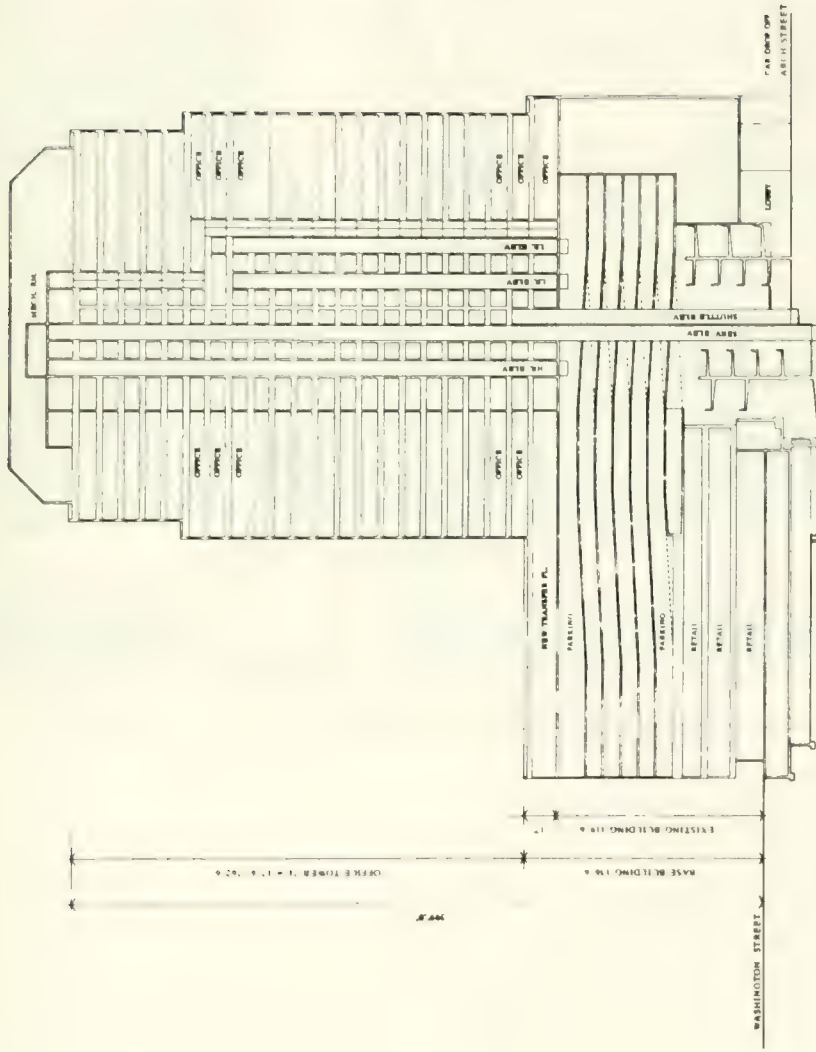
SCALE 0 5 15 40

OWNER: FRANK-KING ASSOCIATES L.P. DEVELOPER: OLD STATE MANAGEMENT CORP.
ARCHITECTS: CRANG AND BOAKE INC. & SHEPLEY BULFINCH RICHARDSON AND ABBOTT

OCT. 12, 1988

FORTY FRANKLIN





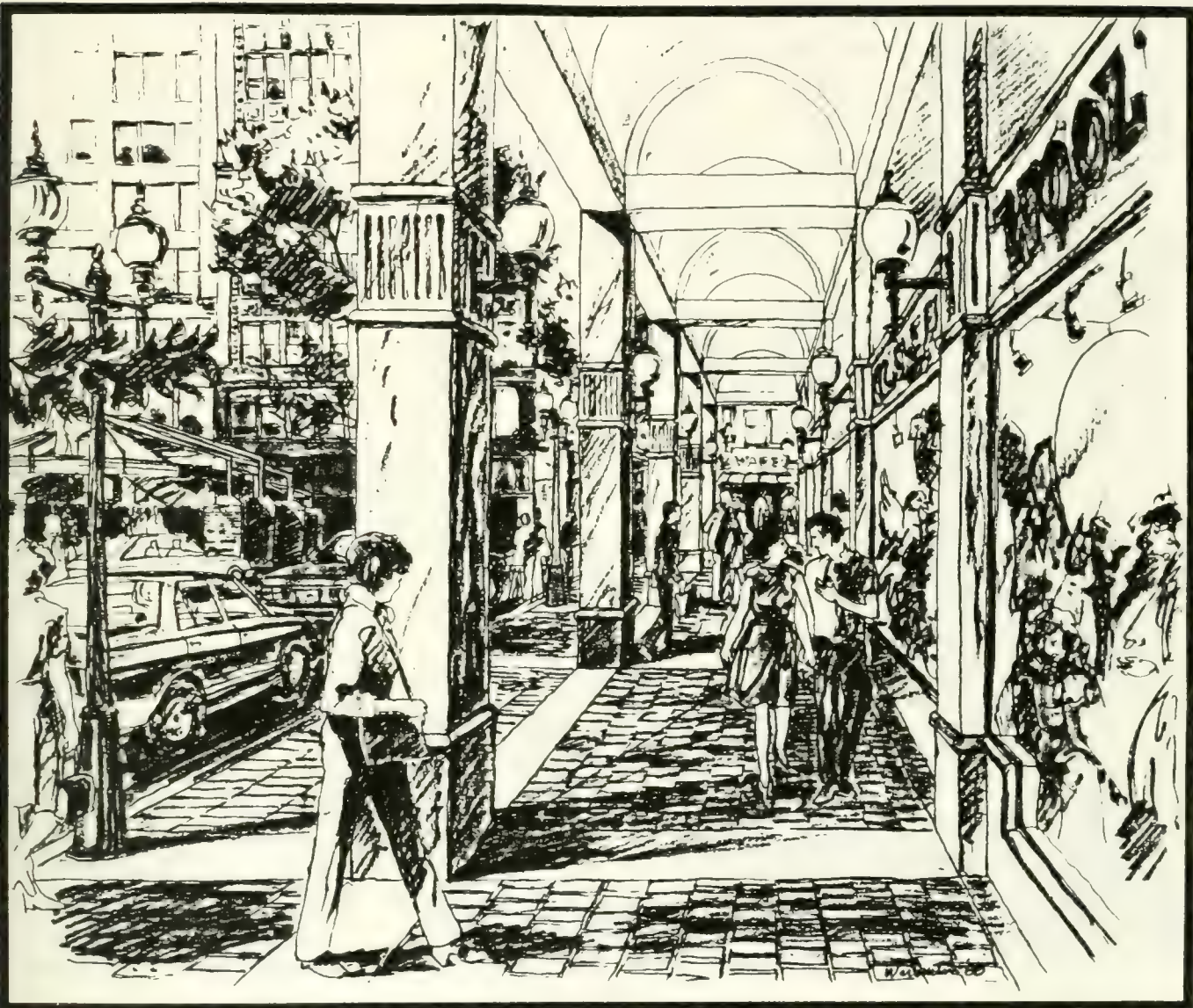
BUILDING SECTION

SCALE 0 10 20 40

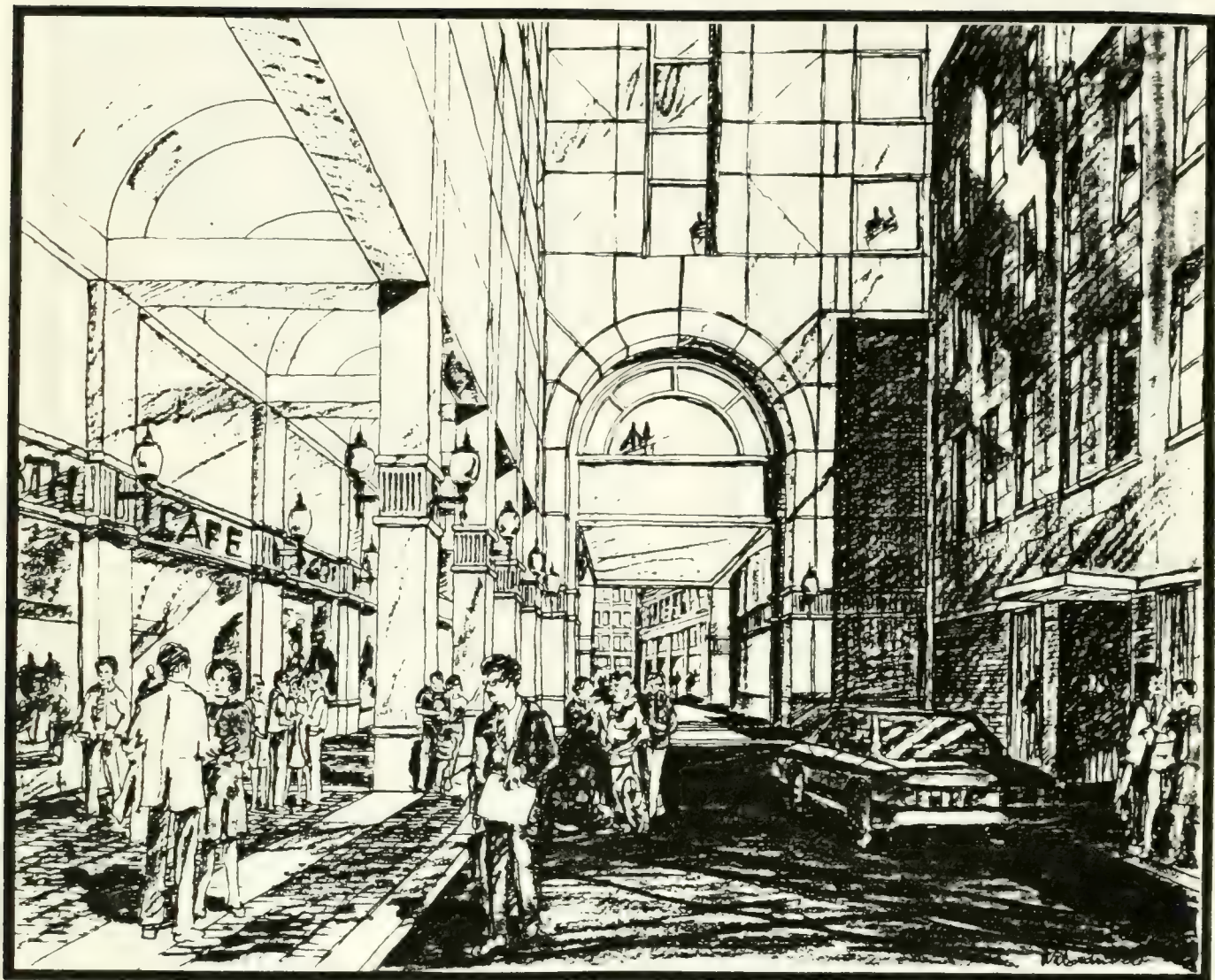
FORTY FRANKLIN

OWNER: FRANK-KING ASSOCIATES L.P. DEVELOPER: OLD STATE MANAGEMENT CORP.
 ARCHITECTS: CRANG AND BOAKE INC & SHEPLEY BULFINCH RICHARDSON AND ABBOTT

OCT. 12, 1988

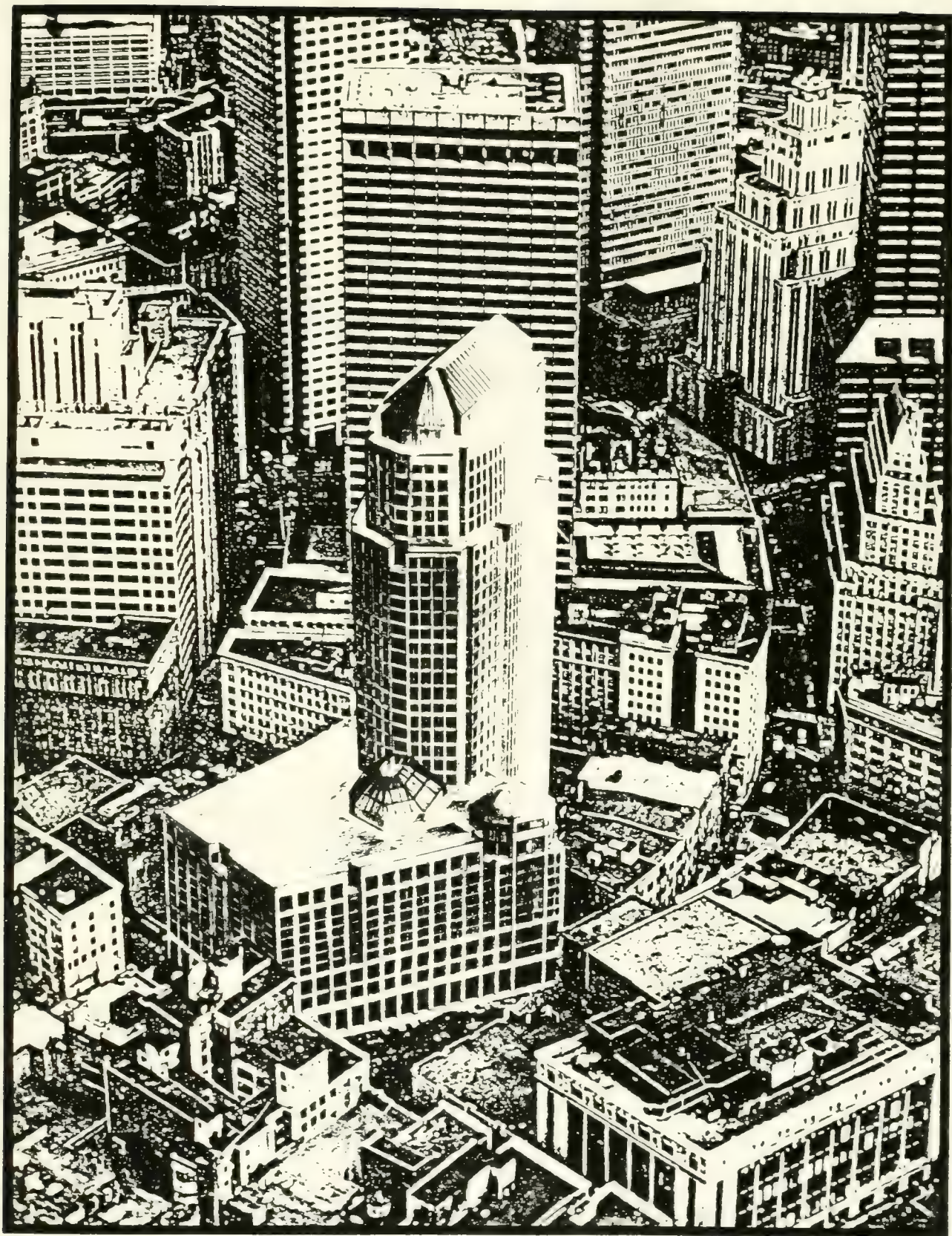


FRANKLIN STREET ARCADE



HAWLEY STREET CONNECTION





PERSPECTIVE LOOKING SOUTH



ENVIRONMENTAL NOTIFICATION FORM

I. SUMMARY

A. Project Identification

1. Project Name Forty Franklin
Address/Location 2-40 Franklin St., 342 Washington St., 20-49 Arch St., 35 Hawley St.
City/Town Boston
2. Project Proponent Old State Management Corporation
Address Exchange Place, 53 State St., Boston, MA.
3. Est. Commencement Fall, 1989 . Est. Completion Spring, 1990 .
Approx. Cost \$ 170 Million Status of Project Design 25 % Complete.
4. Amount (if any) of bordering vegetated wetlands, salt marsh, or tidelands to be dredged, filled, removed, or altered (other than by receipt of runoff) as a result of the project.
0 acres 0 square feet.
5. This project is categorically included and therefore requires preparation of an EIR.
Yes X No ?

B. Narrative Project Description

Describe project and site.

The proposed project consists of an addition to and the complete re-construction of the exterior facade and arcades of the existing Woolworth/garage building located at Washington, Franklin, Hawley and Arch Streets, plus the construction of a new office building located over the existing garage entry ramp area between Arch and Hawley Streets.

The new office building will be twenty-two stories high and will contain 500,000 usable square feet. The garage will be modified by closing the entrance and exit from Arch Street and, possibly, by filling in the existing lightwell. Hawley Street will be re-connected to form a through street from Franklin Street to Milk Street and will serve as the only entrance and exit to the garage.

A strip of BRA-owned land (4863 sq.ft.) will be required to complete the Arch Street entrance to the building. The office building portion of this project utilizes this parcel to transfer its structural members to grade from ten stories above. This transition leaves a volume of space which is presently utilized as mechanical space. It is possible this space could be transformed to rentable floor area for users in need of 4,000 square foot floors. It is

Copies of the complete ENF may be obtained from (proponent or agent):

Name: Judith M. Lilla Firm Agency: H.W. Moore Associates, Inc.
Address: 112 Shawmut Ave., Boston Phone No. 357-8145

B. Narrative Project Description
Continued

the developer's thought that this space may be offered at greatly reduced rates to City-designated non-profit or cultural organizations.

The developer proposes to remove an architectural eyesore and replace it with a building which will strengthen the identity of Downtown Crossing by improving the facade and streetscape of the existing structure and add office space to the Financial District. The building will also contribute to the City skyline in an exciting way.

C. List the State or Federal agencies from which permits or other actions have been/will be sought

Agency Name

Permit

Date filed, file no

DE/DE, DWPC

Sewer Connection

DEQE/DAQC

Fossil Fuel Utilization

F.A.A.

Notice of Construction or
Alteration

D. List any government agencies or programs from which the proponent will seek financial assistance for this project

Agency Name

Funding Amount

E. Areas of potential impact (complete Sections II and III first, before completing this section).

1. Check all areas in which, in the proponent's judgment, an impact of this project may occur. Positive impacts, as well as adverse impacts, may be indicated.

	Construction Impacts	Long Term Impacts
Inland Wetlands		
Coastal Wetlands/Beaches		
Tidelands		
Traffic	X	X
Open Space/Recreation		
Historical/Archaeological		
Fisheries/Wildlife		
Vegetation/Trees		
Agricultural Lands		
Water Pollution		
Water Supply/Use		X
Solid Waste		X
Hazardous Materials		
Air Pollution	X	
Noise	X	
Wind/Shadow		X
Aesthetics		X
Growth Impacts		
Community/Housing and the Built Environment		
Other (Specify)		

2. List the alternatives which have been considered.

Build and No-Build



F. Has this project been filed with EOEa before? No X Yes _____ EOEa No. _____

G. WETLANDS AND WATERWAYS

1. Will an Order of Conditions under the Wetlands Protection Act (c.131s.40) or a License under the Waterways Act (c.91) be required?
Yes _____ No X
2. Has a local Order of Conditions been:
 - a. issued? Date of issuance _____ ; DEQE File No. _____ .
 - b. appealed? Yes _____ ; No _____ .
3. Will a variance from the Wetlands or Waterways Regulations be required? Yes _____ ; No X .

II. PROJECT DESCRIPTION

- A. Map: site plan. Include an original 8½ x 11 inch or larger section of the most recent U.S.G.S. 7.5 minute series scale topographic map with the project area location and boundaries clearly shown. If available, attach a site plan of the proposed project.

- B. State total area of project: 1.46 acres.

Estimate the number of acres (to the nearest 1/10 acre) directly affected that are currently:

- | | | | |
|-----------------------|-------------------|-------------------------|----------------|
| 1. Developed | <u>1.46</u> acres | 6. Tidelands | <u>0</u> acres |
| 2. Open Space/ | | 7. Productive Resources | |
| Woodlands Recreation | <u>0</u> acres | Agriculture | <u>0</u> acres |
| 3. Wetlands | <u>0</u> acres | Forestry | <u>0</u> acres |
| 4. Floodplain | <u>0</u> acres | 8. Other | <u>0</u> acres |
| 5. Coastal Area | <u>0</u> acres | | |

- C. Provide the following dimensions, if applicable:

	Existing	Increase	Total
	N/A	N/A	N/A
Length in miles	0	0	0
Number of Housing Units	10	1-21	11-31
Number of Stories	469,700	545,000	1,014,700
Gross Floor Area in square feet	888	49-97	937-985
Number of parking spaces			
Total of Daily vehicle trips to and from site (Total Trip Ends)	888	49-97	937-985
Estimated Average Daily Traffic on road(s) serving site			
1. Franklin Street	5600	72	5672
2. Arch Street	1305	17	1322
3. Hawley Street	556	8	564

* Counts from City of Boston 1980 Traffic Data

- D. TRAFFIC PLAN. If the proposed project will require any permit for access to local roads or state highways, attach a sketch showing the location and layout of the proposed driveway(s).

III ASSESSMENT OF POTENTIAL ADVERSE ENVIRONMENTAL IMPACTS

Instructions: Explain direct and indirect adverse impacts, including those arising from general construction and operations. For every answer explain why significant adverse impact is considered likely or unlikely to result. Positive impact may also be listed and explained.

Also, state the source of information or other basis for the answers supplied. Such environmental information should be acquired at least in part by field inspection.

A. Open Space and Recreation

1. Might the project affect the condition, use, or access to any open space and/or recreation area?

Explanation and Source:

The project site is located in urban area of downtown Boston which is highly developed. Thus, the project will not affect the condition, use or access to any open space or recreation area.

2. Is the project site within 500 feet of any public open space, recreation, or conservation land?

Explanation and Source: A small urban "park" is located on Franklin St., directly opposite the site next to Filene's. Similar open space is located one block north of the site, at the corner of Washington and School Sts, in front of the Boston Five Cent Savings Bank.

SOURCE: Site Inspection/Boston Conservation Commission

B. Historic and Archaeological Resources

1. Might any site or structure of historic significance be affected by the project? (Prior consultation with Massachusetts Historical Commission is advised.)

Explanation and Source: The project is located adjacent to the Newspaper Row District listed in the National Register of Historic Places and the Old South Meeting House, the most significant historic building in the area. None of these buildings will be affected by the project.

SOURCE: Massachusetts Historical Commission

2. Might any archaeological site be affected by the project? (Prior consultation with Massachusetts Historical Commission is advised.)

Explanation and Source:

No archaeological site will be affected by the project.

SOURCE: Mass. Historical Commission

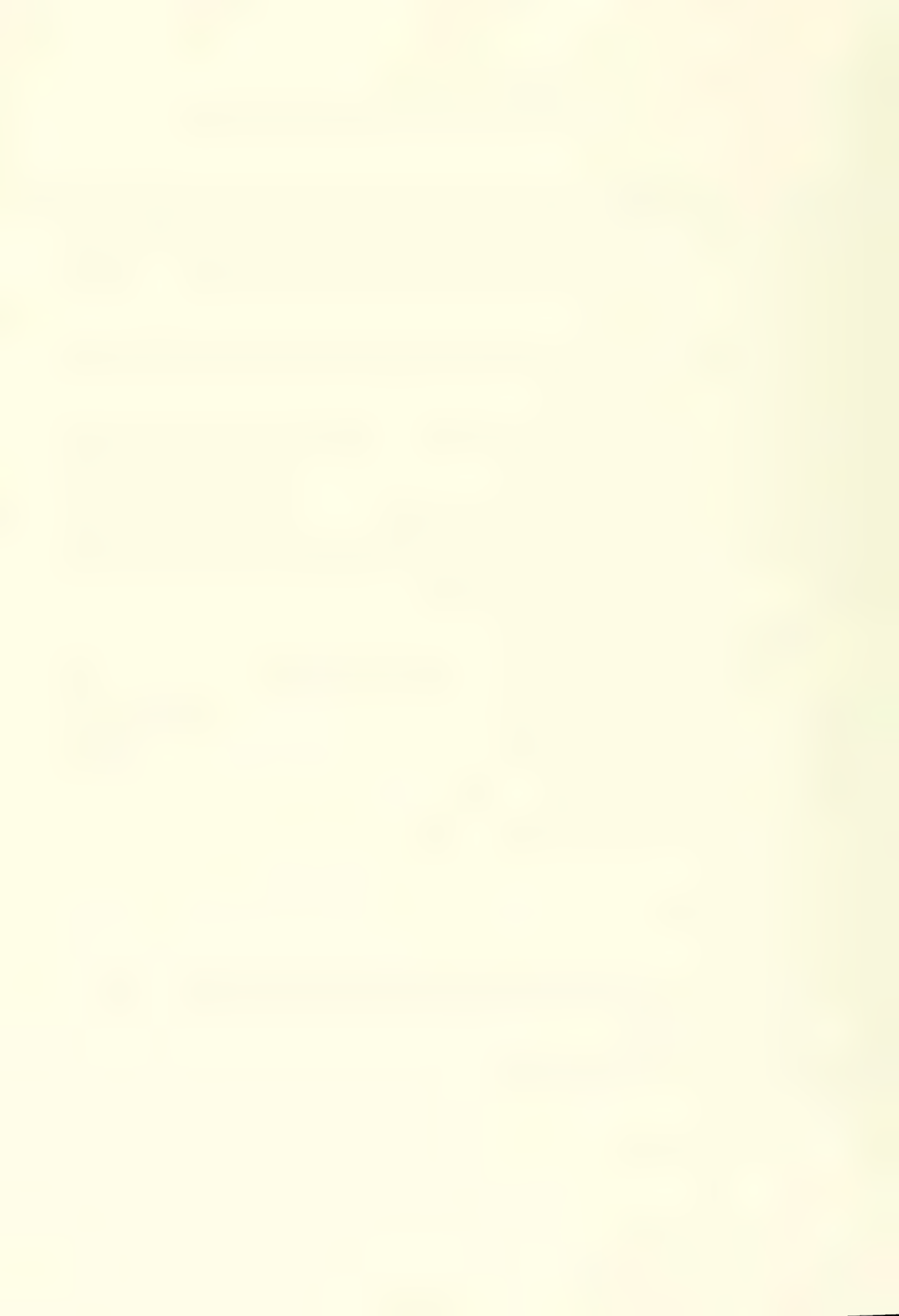
C. Ecological Effects

1. Might the project significantly affect fisheries or wildlife, especially any rare or endangered species? (Prior consultation with the Massachusetts Natural Heritage Program is advised).

Explanation and Source:

The project is in an urban area and will not affect fisheries or wildlife.

SOURCE: Site Inspection



2. Might the project significantly affect vegetation, especially any rare or endangered species of plant? (Prior consultation with the Massachusetts Natural Heritage Program is advised.)

(Estimate approximate number of mature trees to be removed: 0)

Explanation and Source:

The project is within an urban area and will not affect fisheries or wildlife.

3. Agricultural Land. Has any portion of the site been in agricultural use within the last 15 years?
If yes, specify use and acreage.

Explanation and Source:

No. The site has been developed for well over 100 years. For over 15 years, it has been occupied by a parking garage and an F.W. Woolworth's Department Store.

D. Water Quality and Quantity

1. Might the project result in significant changes in drainage patterns?

Explanation and Source:

The proposed project calls for the construction of an office building above an existing structure. No change in existing drainage patterns or rate runoff is anticipated.

SOURCE: Project Planner

2. Might the project result in the introduction of any pollutants, including sediments, into marine waters, surface fresh waters or ground water?

Explanation and Source:

The project will not result in the introduction of any pollutants, including sediments, into marine waters, surface fresh waters or ground water.

3. Does the project involve any dredging? No x Yes Volume . If 10,000 cy or more, attach completed Standard Application Form for Water Quality Certification, Part I (314 CMR 9.02(3), 9.90, DEQE Division of Water Pollution Control).

4. Will any part of the project be located in flowed or filled tidelands, Great Ponds, or other waterways? (Prior consultation with the DEQE and CZM is advised.)

Explanation and Source:

No part of the project will be located in flowed or filled tidelands.

5. Will the project generate or convey sanitary sewage? No _____ Yes X

If Yes, Quantity: 37,500 gallons per day

Disposal by: (a) Onsite septic systems Yes _____ No X
(b) Public sewerage systems (location; average and peak daily flows to treatment works) Yes X No _____

Explanation and Source:

Quantity calculated: 75 gpd/1000 s.f.

SOURCE: 310 CMR 15.00 State Environmental Code, Title 5

6. Might the project result in an increase in paved or impervious surface over a sole source aquifer or an aquifer recognized as an important present or future source of water supply?

Explanation and Source:

The project does not overlie an aquifer recognized as an important present or future source of water supply.

SOURCE: Boston Water and Sewer Commission

7. Is the project in the watershed of any surface water body used as a drinking water supply?

Explanation and Source:

The site is not in the watershed of any surface water body used as a drinking water supply.

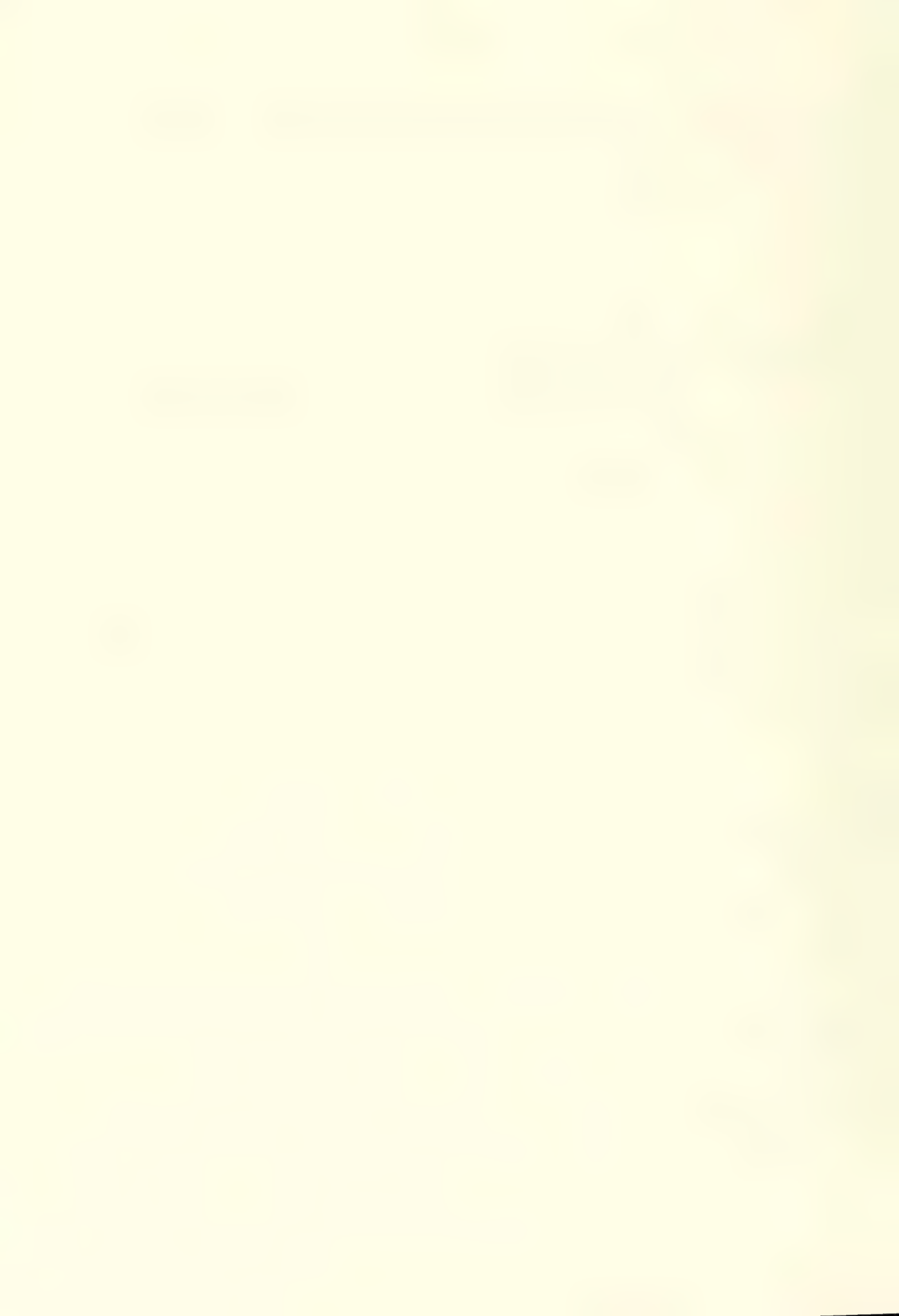
SOURCE: Boston Water and Sewer Commission

8. Are there any public or private drinking water wells within a 1/2-mile radius of the proposed project?

Explanation and Source:

There are no private or public drinking water wells within 1/2-mile radius of the project site.

SOURCE: Boston Water and Sewer Commission



9. Does the operation of the project result in any increased consumption of water? **Yes**

Approximate consumption 41,250 gallons per day. Likely water source(s) **Municipal**

Explanation and Source:

Quantity: 110% of Sewage

SOURCE: Quantity calculated on Generation Rates of Mass. Environmental Code

Architect

E. Solid Waste and Hazardous Materials

1. Estimate types and approximate amounts of waste materials generated, e.g., industrial, domestic, hospital, sewage sludge, construction debris from demolished structures. How/where will such waste be disposed of?

Explanation and Source:

At full occupancy, it is estimated that the proposed project will generate 5,000 lbs./day of solid waste in the form of domestic waste.

SOURCE: Mass. Environmental Code, Title 5,

2. Might the project involve the generation, use, transportation, storage, release, or disposal of potentially hazardous materials?

Explanation and Source:

The project will not involve the generation, use, transportation, storage, release or disposal of potentially hazardous materials.

SOURCE: Project Manager/Architect

3. Has the site previously been used for the use, generation, transportation, storage, release, or disposal of potentially hazardous materials?

Explanation and Source:

With respect to toxic waste on site, a 21E Site Investigation will be performed by Haley and Aldrich.

SOURCE: Architect/Proponent

F. Energy Use and Air Quality

1. Will space heating be provided for the project? If so, describe the type, energy source, and approximate energy consumption.

Explanation and Source:

Space heating will not be provided for this project.

SOURCE: Project Architect

2. Will the project require process heat or steam? If so, describe the proposed system, the fuel type, and approximate fuel usage.

Explanation and Source: Although the existing Woolworth's uses steam for heating and cooling, the proposed office building will be supplied with natural gas.

SOURCE: Project Architect

3. Does the project include industrial processes that will release air contaminants to the atmosphere? If so, describe the process (type, material released, and quantity released).

Explanation and Source: NO. The proposed use is an office building. No industrial processes are expected. The garage will be designed to vent exhaust emissions in a manner similar to the existing condition.

SOURCE: Project Proponent/Architect

4. Are there any other sources of air contamination associated with the project (e.g. automobile traffic, aircraft traffic, volatile organic compound storage, construction dust)?

Explanation and Source:

Due to the minimal increase in traffic volumes anticipated, increases in microscale carbon monoxide emissions are not expected to be significant. In addition, the proponent will use all appropriate mitigating measures to minimize construction dust impacts.

5. Are there any sensitive receptors (e.g. hospitals, schools, residential areas) which would be affected by air contamination caused by the project?

Explanation and Source:

The project locus is in an urban area with numerous receptors which might be considered sensitive to pollution emissions. However, except during the construction/rehabilitation period, pollution emissions will be limited to automotive exhaust and heating units.

G. Noise

1. Might the project result in the generation of noise?

(Include any source of noise during construction or operation, e.g., engine exhaust, pile driving, traffic.)

Explanation and Source:

Although construction of the project is expected to result in temporary noise impacts from use of heavy equipment, measures will be taken to mitigate the impacts.

- 2 Are there any sensitive receptors (e.g., hospitals, schools, residential areas) which would be affected by any noise caused by the project?

Explanation and Source:

During construction, various businesses in the immediate vicinity of the project site may be affected by noise.

SOURCE: Site Inspection

3. Is the project a sensitive receptor, sited in an area of significant ambient noise?

Explanation and Source:

The Project is not a sensitive receptor sited in an area of significant ambient noise.

SOURCE: Site Inspection

H. Wind and Shadow

1. Might the project cause wind and shadow impacts on adjacent properties?

Explanation and Source:

Wind impact to pedestrian environment is mitigated by the location and setbacks of the office building. Preliminary analysis indicates no significant additional shadow on public open space in front of Boston Five Cent Savings Bank at Washington and School Streets. Shadow effect at street level is minimal since most new shadows from the office building addition fall across existing roof tops or areas that are already in shadow. SOURCE: Architect

I. Aesthetics

1. Are there any proposed structures which might be considered incompatible with existing adjacent structures in the vicinity in terms of size, physical proportion and scale, or significant differences in land use?

Explanation and Source: The massing and architectural expansion of Forty Franklin is designed to be compatible with the surrounding urban context. The existing 9-story building on the major portion of the site contained by Washington, Franklin and Hawley Sts. will receive a 1-story addition, and its height will remain approximately equal to the neighboring buildings of Downtown Crossing. The new office building will face its narrow front on Arch St. and extend into the eastern part of the site, over the existing garage entrance and circular ramp. In this location the office building will be perceived as a transitional, mid-block building on the edge of the Financial District, rather than as a central element of Downtown Crossing.

2. Might the project impair visual access to waterfront or other scenic areas?

Explanation and Source:

There are no waterfront or other scenic areas within the vicinity of the project which might be impaired.

IV. CONSISTENCY WITH PRESENT PLANNING

Discuss consistency with current federal, state and local land use, transportation, open space, recreation and environmental plans and policies. Consult with local or regional planning authorities where appropriate.

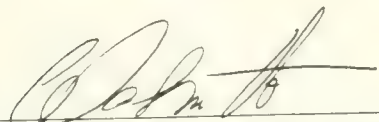
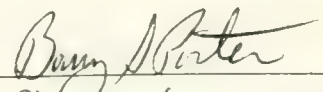
In designing Forty Franklin, the Proponent has considered the Boston Redevelopment Authority's framework study for the area. Meetings were held with BRA staff during the project's evolution, and the proposed massing is responsive to concerns expressed regarding earlier proposals. The project team will continue to work with the BRA and other public agencies as the design process continues. The office building's height is higher than currently allowed by zoning, but is consistent with that allowed for many recent Financial District buildings; the lower mass on Washington Street and Franklin Street is lower than permitted by zoning.

V. FINDINGS AND CERTIFICATION

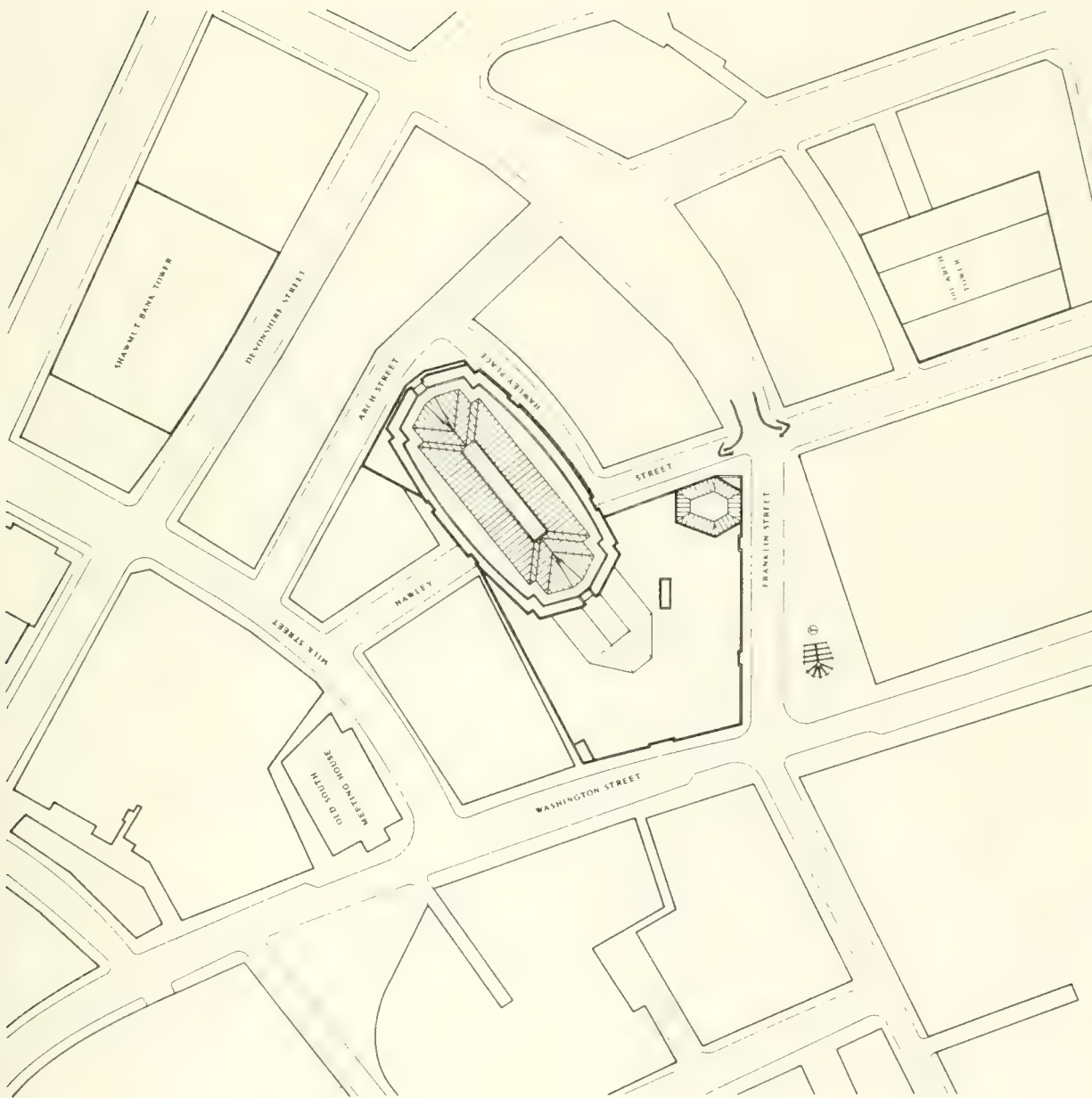
- A. The public notice of environmental review has been will be published in the following newspaper(s):

(NAME) Boston Herald (Date) November 30, 1988

- B. This form has been circulated to all agencies and persons as required by 301 CMR 11.24.

<u>11/28/88</u>		<u>11/28/88</u>	
Date	Signature of Responsible Officer or Project Proponent	Date	Signature of person preparing ENF (if different from above)
	<u>Dan Hart, Exec. V.P.</u>		<u>Barry S. Porter, A.I.C.P.</u>
	Name (print or type)		Name (print or type)
	<u>Old State Management Corp.</u>		<u>H.W. Moore Assoc., Inc.</u>
	Address <u>Exchange Place, 53 State Street</u>		Address <u>112 Shawmut Avenue</u>
	<u>Boston, MA 02109</u>		<u>Boston, MA.02118</u>
	Telephone Number <u>(617)426-3362</u>		Telephone Number <u>357-8145</u>





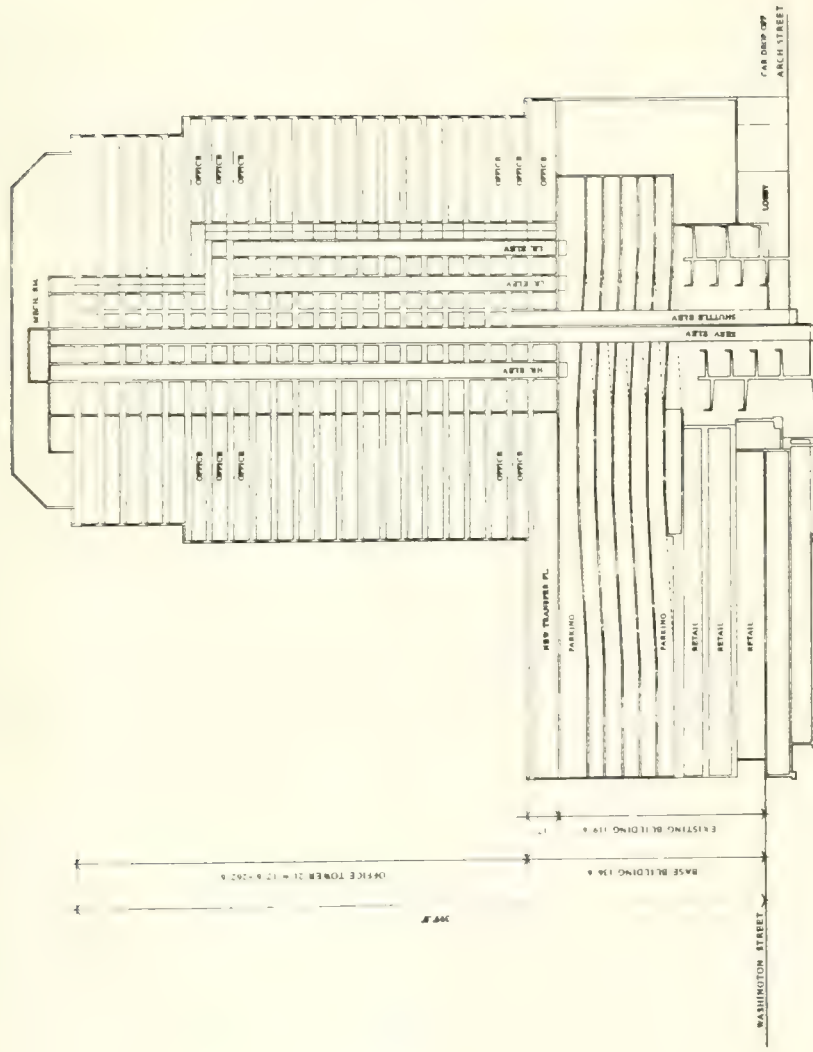
SITE PLAN

FORTY FRANKLIN

OWNER: FRANK-KING ASSOCIATES L.P. DEVELOPER: OLD STATE MANAGEMENT CORP.
 ARCHITECTS: CRANG AND BOAKE INC. & SHEPLEY BULFINCH RICHARDSON AND ABBOTT

SCALE 0' 30' 60' 120'

OCT. 12, 1988



BUILDING SECTION

SCALE 0 10 20 40

FORTY FRANKLIN
 OWNER: FRANK-KING ASSOCIATES L.P. DEVELOPER: OLD STATE MANAGEMENT CORP.
 ARCHITECTS: CRANG AND BOAKE INC. & SHEPLEY BULFINCH RICHARDSON AND ABBOTT

OCT. 12, 1988

BOSTON
REDEVELOPMENT
AUTHORITY

Raymond L. Flynn
Director

Stephen Coyle
Deputy Director

City Hall Square
Boston, MA 02201
(617) 722-4300

Mr. Dan Hart
Executive Vice President
Old State Management Corporation
Exchange Place
53 State Street
37th Floor
Boston, MA 02109

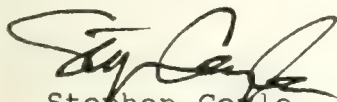
RE: FORTY FRANKLIN STREET

Dear Mr. Hart:

Enclosed is the Scoping Determination for the Forty Franklin Street project for which you recently submitted a Project Notification Form ("PNF") pursuant to Article 31 of the Boston Zoning Code. The Scoping Determination requests information required by the Boston Redevelopment Authority in response to the PNF submitted.

Additional information may be required during the course of our review of the project. If you have any questions concerning the Scoping Determination or otherwise in connection with review of the Proposed Project, please contact William D. Whitney at 722-4300, ext. 4232.

Sincerely,


Stephen Coyle

C31/H

BOSTON REDEVELOPMENT AUTHORITY

SCOPING DETERMINATION
FORTY FRANKLIN

SUBMISSION REQUIREMENTS
FOR DRAFT PROJECT IMPACT REPORT (DPIR)

PROPOSED PROJECT: Forty Franklin
PROJECT LOCATION: Forty Franklin Street
DEVELOPER: Old State Management Corporation
PNF SUBMISSION DATE: October 18, 1988

This Scoping Determination is issued pursuant to Section 31-5 of the Boston Zoning Code (the "Code"). The Applicant filed a Project Notification Form ("PNF") on October 18, 1988. This Scoping Determination requests information required by the Boston Redevelopment Authority ("BRA") for its review of the Proposed Project in connection with the following:

- a. Development Review pursuant to Article 31 of the Code;
- b. Recommendations to the Board of Appeal with respect to zoning relief required for the Proposed Project, pursuant to Articles 7 and 27D of the Code; and
- c. Approval of a Development Impact Project Plan, pursuant to Article 26A of the Code, and the entering of agreements for the Development Impact Project Contribution and Jobs Contribution Grant, pursuant to Articles 26A and 26B of the Code.

The Proposed Project is being reviewed by the BRA pursuant to multiple sections of the Code. Article 31, Development Review Requirements, sets out a comprehensive procedure for project review, and provides the BRA the authority to regulate the design, transportation, environmental, and other impacts of proposed projects. Article 31 requires the submission of a satisfactory Final Project Impact Report prior to the issuance of a building permit. In addition, however, the Proposed Project seeks zoning relief, pursuant to Articles 7 and 27D of the Code. The substantive review requirements imparted by these sections address related but not the identical issues which are the basis of Article 31 review. The reviews, however, do overlap to a significant degree.

Therefore, the BRA's review of zoning relief for the Proposed Project has been incorporated into the Article 31 process to eliminate regulatory duplication and consolidate the Proposed Project's review into one process and one set of documents. The DPIR must conform to Article 31 and this Scoping Determination.

Pursuant to Section 27D-18 of the Code, the Proposed Project is located partially within the Midtown Cultural District Special Study Area and partially within the Financial District Special Study Area. On July 14, 1988, the BRA released the Midtown Cultural District Plan and accompanying zoning. Under the proposed Plan and zoning, the Proposed Project is entirely within the Midtown Cultural District.

While neither the Midtown Cultural District Plan nor the zoning article has been adopted into law, these documents are sources of the city's planning objectives for this area. The BRA Board recommended that the Zoning Commission adopt Article 38 as published January 12, 1989. The Plan has been adopted and we anticipate the adoption of its accompanying zoning article in the near future. Your Draft Project Impact Report should address how the Proposed Project meets the objectives of the Midtown Cultural District Plan and conforms with the proposed zoning implementing the Plan.

In addition, it is recommended that the Draft Project Impact Report for the Proposed Project specifically address the criteria provided in the Code that must be satisfied in connection with all of the various types of zoning relief required for the Proposed Project.

The Proposed Project, located on a 63,660 square foot site bounded by Hawley Place and Arch, Hawley, Franklin and Washington Streets, includes the rehabilitation of the existing Woolworth's building and garage, and the construction of new office space above. The characteristics of the Proposed Project include:

Total New SF:	545,000
Office SF:	545,000
Retail SF:	134,700
Parking SF:	355,000

With respect to the proposed height and density, a height of 125 feet and an FAR of 8 are the maximum allowed "as-of-right" for the Proposed Project under Article 27D of the Code. Article 27D authorizes the Board of Appeal to grant an enhanced height of 155 feet and an FAR of 10 under certain conditions in the area within which the Proposed Project is located.

The height and density for the Proposed Project as proposed in the PNF exceed the maximum achievable under either Article 27D or



the Midtown Cultural District zoning as currently proposed. The Midtown Cultural District Zoning permits an FAR of 14 and additional allowances for garage and certain other space and includes a height limit of 350 feet. Moreover, under the proposed Midtown Cultural District zoning, the Proposed Project could achieve the maximum height and FAR permitted only if a Development Plan is approved which, among other things, provides certain public benefits sufficient to outweigh any burdens imposed (see Sections 38-14 and 38-16). The PNF for the Proposed Project does not include a description of any such public benefits.

This Scoping Determination includes requests for certain information for alternative development options for the Proposed Project. It does not request information with respect to development within the "as-of-right" height and density limitations of Article 27D of the Code. Such information may, however, be requested at a later time during the course of review of this project.

For ease of reference, the alternatives are denoted as follows:

- Option A: The project as proposed in the PNF with a height of 399 feet and an FAR of 15.9.
- Option B: A project with an enhanced height of 155 feet and an FAR of 10.
- Option C: A project with 500,000 SF of office space, an average floorplate size of 22,500 SF, 20 floors with floor to floor heights of 12.5 feet, and an FAR and height which meets the requirements of Article 38 of the Boston Zoning Code.

In addition to full-size scale drawings, 25 copies of a bound booklet containing all of the following submission materials reduced to size 8 1/2" x 11", except where otherwise specified, are required.

I. GENERAL INFORMATION

1. Applicant Information

A. Development Team

1. Names

a. Developer (including description of development entity)

b. Attorney

c. Project consultants

2. Business address and telephone number for each

3. Designated contact for each

4. Description of current or formerly-owned developments in Boston

B. Legal Information

1. Legal judgments or actions pending concerning the Proposed Project

2. History of tax arrears on property owned in Boston by development team

3. Evidence of site control over the project area, including current ownership and purchase options of all parcels in the Proposed Project, all restrictive covenants and contractual restrictions affecting the Applicant's right or ability to accomplish the Proposed Project and the nature of the agreements for securing parcels not owned by the Applicant. The PNF states that the project as proposed would require acquisition of a 4,863 square foot parcel owned by the BRA. The Applicant must commence negotiation with the BRA for its acquisition and any amendment to disposition documents that may be required to implement the development.

2. Financial Information

(See Appendix 1 for required financial information)

Development and Operating Pro Forms must be provided for Options A, B, and C.

A. Full disclosure of names and addresses of all financially involved participants and bank references

B. Development Pro Forma

C. Ten Year Operating Pro Forma

3. Project Area

A. Description of metes and bounds of project area

4. Public Benefits

A. Description of Development Impact Project Contribution and Jobs Contribution Grant specifying amount of housing linkage and jobs linkage contributions and method of housing linkage contribution (housing payment or housing creation)

B. Increase in tax revenues, specifying existing and estimated future annual property taxes

C. Description of other public benefits, if any, to be provided; for example, any of the public benefits described in Section 38-16 of the proposed Midtown Cultural District zoning as prerequisite to receiving development plan approval

5. Employment

A. Anticipated employment levels including the following:

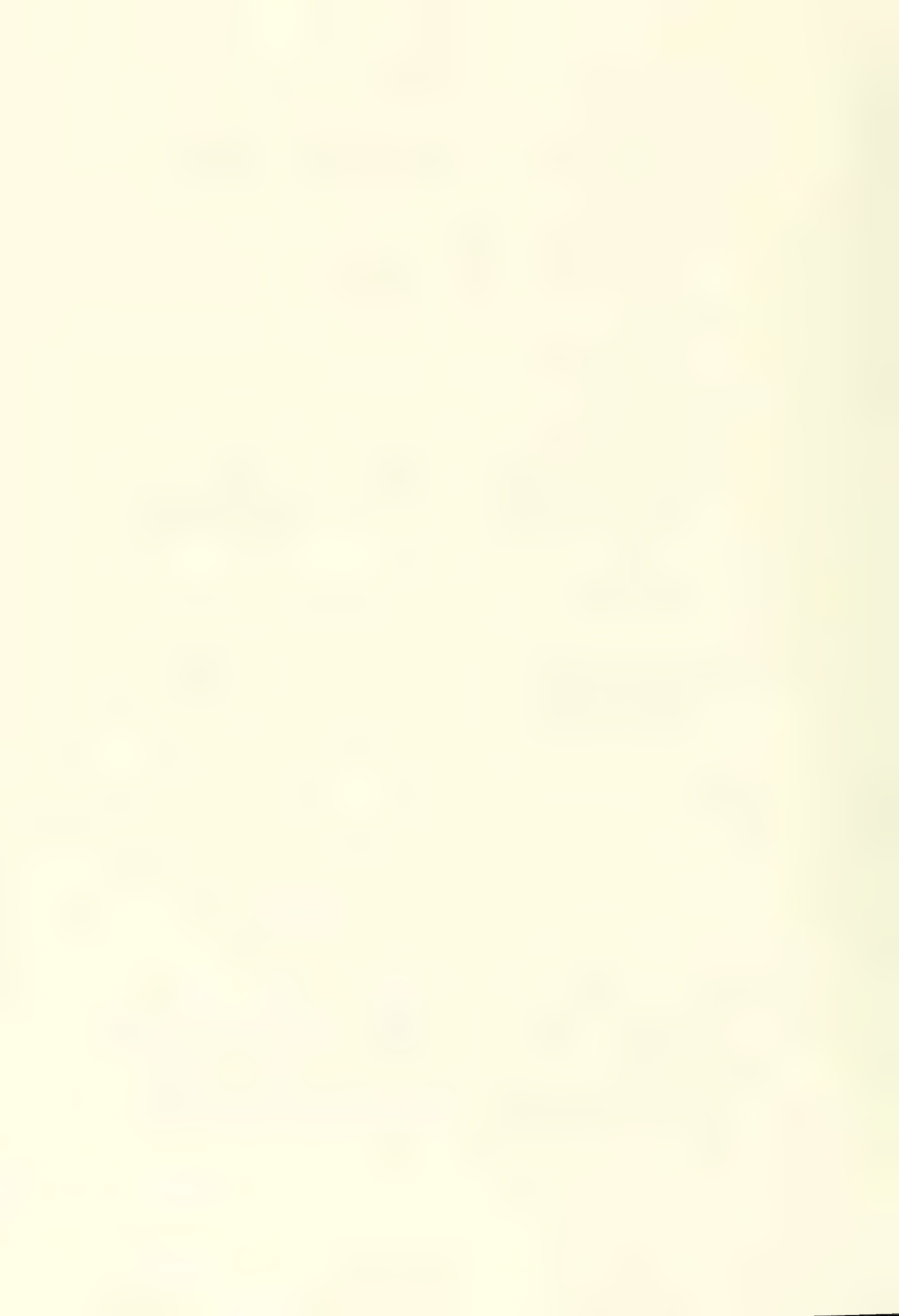
1. Estimated number of construction jobs

2. Estimated number of permanent jobs

6. Regulatory Controls and Permits

A. Existing zoning requirements, zoning computations, and any anticipated requests for zoning relief

B. Anticipated permits required from other local, state, and federal entities with a proposed application schedule



- C. If the Proposed Project is subject to the Massachusetts Environmental Policy Act (MEPA), required documentation including copies of the Environmental Notification Form and a proposed schedule for coordination with Article 31 procedures
- D. Description of how the proposed project conforms with the School - Franklin Urban Renewal Plan, or if it does not, identification of those characteristics which do not conform.

7. Community Groups

- A. Names and addresses of project area owners, displacees, abutters, and also any community groups which, in the opinion of the Applicant, may be substantially interested in or affected by the Proposed Project
- B. A list of meetings proposed and held with interested parties

II. TRANSPORTATION COMPONENT

The following requirements incorporate comments by the Boston Transportation Department ("BTD") regarding transportation issues and objectives for the Proposed Project.

Data on supply and usage characteristics of the various transportation systems within the study area must be provided. An extensive data base of recent transportation information prepared for other projects within the study area exists, and is available from the BTD. All relevant sources should be consulted and applicable data included as it becomes available. Similarly, it is expected that the Proposed Project development team will share available data regarding their development with the BTD, the BRA, and other project consultants.

The following must be submitted only for Option A except where otherwise noted. Specific transportation-related elements which must be included in the Access Plan are defined below:

1. Vehicular Traffic

The following information must be provided for Options A and B and must be analyzed for year 1992, expected first year of full occupancy.

- A. Projection of vehicular traffic demand and generation including weekday A.M. and P.M. peak hours
- B. Directional distribution
- C. Modal split and vehicle occupancy analysis
- D. Circulation and access impacts on the local and regional street system and local intersections in the study area, including capacity and Level of Service (LOS) analyses

The impacts of the circulation pattern, queuing, and storage of trucks, MBTA buses and taxis within the auto restricted zone of Franklin Street must also be studied.

The report must address the potential LOS impacts on intersections within the study area for which LOS may be affected by the following changes:

- o Removal of the existing garage access ramps on Hawley Street and construction of a new garage entrance
 - o Relocation of the garage entrance/exit along Arch Street, and construction of a drop-off area
- E. Analyses of the conditions and the impact of the Proposed Project at the intersections listed below must be analyzed for weekday A.M. and P.M. peak hour conditions. The analyses must be conducted under the following scenarios:
 - o Existing 1989 conditions
 - o No Build for Forty Franklin Street site, but with background area development included (1994 condition)
 - o Full Build (1994 conditions)

Analyses must be conducted using techniques described in the 1985 Highway Capacity Manual and contained in the Capacity of Intersections: The CTPS HCM Program (CINCH) Program computer software program.

The intersections listed below and shown on Appendix 4 are to be studied:

- o Franklin Street/Devonshire Street

- o Franklin Street/Arch Street
- o Franklin Street/Hawley Street
- o Milk Street/Arch Street
- o Arch Street/Garage Entrance
- o Milk Street/Devonshire Street
- o Washington Street/School Street
- o Washington Street/Water Street
- o Milk Street/Hawley Street

Background projects to be included in the impact evaluation must be defined and reviewed with BRA and BTM staff prior to the analysis. Specific known background projects in the area that are expected to influence travel patterns in the 1994 conditions are listed in Appendix 3. At the appropriate time, the BRA and BTM will provide up to date square footages. The status of these specific projects will be confirmed and additional projects may be identified and added, as necessary.

2. Parking

- A. Number of existing spaces in the garage, and the historic utilization pattern
- B. Change in parking from current use of site
- C. Proposed Project's impact on demand for parking
- D. Parking plan, including layout, access, size of spaces
- E. Level of utilization of spaces by different user types and the degree to which joint use of spaces can result in increased efficiency of parking space supply
- F. Evidence of compliance with City of Boston parking freeze requirements
- G. A discussion of the construction impacts of the project on parking supply must be presented. The analysis must compare long-term versus short-term parking needs
- H. A discussion of the operating policies of the garage

3. Access

The following information must be provided for Options

A, B, and C.

- A. A description of internal vehicular circulation system including the numbers, directions and dimensions of the ramps and travel lanes
- B. Access, curb cuts, and/or sidewalk changes required

4. Loading

The following information must be provided for Options A, B, and C.

- A. Number of docks
- B. Location and dimension of existing and proposed docks
- C. Demand generated by different uses
- D. Potential traffic and pedestrian safety impacts

5. Public Transportation

- A. Location and availability of existing and proposed public transportation facilities
- B. Usage and capacity of existing system
- C. Proposed or programmed improvements to the mass transit system (such as extension of the Green Line and changes to bus movements through the site) which would affect mass transit service must be included in the Transportation Access Plan analysis
- D. Peak-hour demand and capacity analysis by corridor and service
- E. Analysis of feasibility of moving MBTA bus stop from Washington Street to Hawley Street and changing the bus route accordingly

6. Pedestrian Circulation

- A. Analysis of impacts on pedestrian circulation from the opening of Hawley Street and the reconstruction of Hawley Place
- B. Studies of access points into and out of the site including the new Arch Street office building



entrance, and highlighting grade changes and proposed solutions including elevations, sections and plans. Include a discussion of City's ongoing review of Downtown Crossing pedestrian circulation.

- C. Sidewalk capacity analyses must include estimates of future No-Build and Full-Build pedestrian volumes on adjacent sidewalk sections. These analyses must follow procedures prescribed either in the 1985 Highway Capacity Manual or in Urban Space for Pedestrians (Pushkarev and Zupan, MIT Press, Cambridge, 1975). Intersection capacity analyses must include specific pedestrian count data for the A.M., midday, and P.M. peak periods at the following intersections:

- o Franklin Street/Arch Street
- o Franklin Street/Hawley Street
- o Washington Street/Franklin Street
- o Washington Street/Woolworth's Entrance

7. Construction Management

The BTD requires the submission of Construction Management Plans for all major construction projects, detailing the construction period impacts and the measures necessary to mitigate them. The Access Plan must contain a general discussion of construction management issues and a list of appropriate mitigation measures, with particular attention paid to impacts on pedestrians.

The Construction Management Plan requirements are outlined in separate guidelines available from the Operations Division of the Boston Transportation Department.

8. Mitigation Measures

- A. Measures to mitigate vehicular traffic congestion, including:
- o Encouragement of flexible work hours
 - o Establishment of Rideshare programs
 - o Provision of on-site bicycle storage facilities
 - o Potential changes to surrounding streets
- B. Measures to manage parking demand and optimize use of available parking spaces, including:

- o Proposed rate structure(s)
 - o Ridesharing incentives and information dissemination
 - o Set-asides for high-occupancy vehicles (specify number and location)
 - o Use of spaces to result in increased efficiency of parking space supply
 - o Set-asides for tenants only
- C. Measures to improve public access and operational functioning of the adjacent street network, including the implementation of a comprehensive sign program
- D. Measures to relieve conflicts caused by loading on the site, including:
- o Shared use of Woolworth's and office building loading docks
 - o Provision of temporary storage areas at loading docks
 - o Restrictions on service and goods delivery
- E. Measures to encourage public transportation use, including:
- o Mass transit information dissemination
 - o MBTA pass sales and subsidies
 - o Reopening of direct station links or pedestrian connections to the Orange Line
- F. Measures to eliminate pedestrian circulation deficiency, including:
- o Extension of hours of security protection
 - o Widening or improved public sidewalks, if necessary

10. Monitoring and Reporting Measures

- A. Measures for establishing compliance with the mitigation measures and monitoring measures
- B. Monitoring transportation impacts of the built project

III. ENVIRONMENTAL PROTECTION COMPONENT

1. Wind

Analysis of wind impacts must be submitted only for Option A.

A quantitative (wind tunnel) analysis of the potential pedestrian level wind impacts is required for the Draft Project Impact Report. This analysis must determine potential pedestrian level winds adjacent to and in the vicinity of the project site and must identify any area where wind velocities are expected to exceed acceptable levels, including the Authority's pedestrian safety/comfort wind standards as attached in Appendix 5.

Particular attention must be given to public and other areas of pedestrian use, including, but not limited to, the entrances to the project and adjacent buildings, the sidewalks adjacent to and opposite the project buildings, the Downtown Crossing pedestrian area, Filene's Park, the Boston Five Cents Savings Bank Plaza, the Hawley Street connection, and other Proposed Project open space areas and pedestrianways. Specific locations to be evaluated shall be determined in consultation with and with the approval of the BRA.

The wind tunnel testing must be conducted in accordance with the following guidelines and criteria:

- o Data must be presented for both the future baseline (no-build) and for the future build scenarios
- o The analysis must include the mean velocity exceeded 1% of the time and the effective gust velocity exceeded 1% of the time. The effectiveness gust velocity shall be computed as the hourly average velocity plus $1.5 \times \text{root mean square variation about the average}$. An alternative velocity analysis (e.g. equivalent average) may be presented with the approval of the BRA
- o Wind direction must include the sixteen compass points. Data must include the percent or probability of occurrence from each direction on seasonal and annual bases
- o Results of the wind tunnel testing must be presented in miles per hour (mph)
- o Velocities must be measured at a scale equivalent to an average height of 4.5 - 5 feet

- o The model scale must be such that it matches the simulated earth's boundary and must include all buildings recently completed, under construction, and planned within at least 1,600 feet of the project site. All buildings taller than 25 stories and within 2,400 feet of the project site must be placed at the appropriate location upstream of the project site during the test. Prior to testing, the model must be reviewed by the BRA. Photographs of the area model must be included in the written report.
- o Sampling time must be for about $[166,000/mxVgr]$ sec, where m is the scale ratio (300-600) and Vgr the gradient velocity in the wind tunnel in mph. The measuring device used to measure the ground winds must have a flat frequency response from dc. to a cut-off frequency of $([mxVgr]/720)$ hz.
- o The written report must compare mean and effective gust velocities on annual and seasonal bases, for no-build and build conditions, and must provide a descriptive analysis of the wind environment and impacts for each sensor point, including such items as the source of the winds, direction, seasonal variations, etc., as applicable. The report must also include an analysis of the suitability of the locations for various activities (e.g. walking, eating, sitting, etc.) as appropriate, in accordance with recognized criteria.
- o The report also must include a description of the testing methodology and model, and a description of the procedure used to calculate the wind velocities (including data reduction and wind climate data). Detailed technical information and data may be included in a technical appendix but must be summarized in the main report.
- o The report must include maps indicating sensor locations and wind speed data, graphically indicating changes in wind speeds due to the project.

For areas where wind speeds are projected to exceed acceptable levels, measures to reduce wind speeds and to mitigate potential adverse impact must be identified and tested in the wind tunnel.

2. Shadow

Shadow analyses must be performed for Options A and B.

A shadow analysis is required for existing and build conditions for the hours 9:00 A.M., 12:00 Noon, and 3:00 P.M. for the vernal equinox, summer solstice, autumnal equinox, and winter solstice. It should be noted that due to time differences (daylight savings vs. standard), the autumnal equinox shadows would not be the same as the vernal equinox shadows and therefore separate shadow studies are required for the vernal and autumnal equinoxes.

Shadow analyses to be conducted for 10:00 A.M., 11:00 A.M., 12:00 Noon, 1:00 P.M., and 2:00 P.M. for October 21 and November 21 are also required for Option A. The shadow impact analysis must include net new shadows, as well as existing shadows and must clearly show the incremental impact of the proposed building. Shadows of surrounding buildings also must be included, as appropriate, to indicate clearly the new shadow impact of the project.

Particular attention must be given to existing or proposed public open spaces and major pedestrian areas, including, but not limited to, sidewalks surrounding the project site, the Downtown Crossing pedestrian area, Filene's Park, the Boston Five Cents Savings Bank Plaza, the Old South Meeting House, Old City Hall and other buildings as listed in Section V, page 20.

Design or other mitigation measures to limit or minimize any adverse shadow impact must be identified and analyzed.

3. Daylight

A daylight analysis must be performed for Options A and B. A daylight analysis for both build and no-build conditions must be provided by measuring the percentage of skydome that is obstructed by the Proposed Project buildings. Areas to be analyzed must include all streets surrounding the project site.

4. Air Quality

An air quality analysis must be performed for Option A only.

The DPIR must describe the existing air quality in the project vicinity and must evaluate ambient levels to determine conformance with the National Ambient Air

Quality Standards of the U.S. Environmental Protection Agency.

A future air quality (carbon monoxide) analysis is required for any intersection where level of service (LOS) is expected to deteriorate to D and the project causes a 10 percent increase in traffic or where the level of service is E or F and the project contributes to a reduction of LOS. The methodology and parameters of the traffic-related air quality analysis must be approved in advance by the Massachusetts Department of Environmental Quality Engineering and the Boston Redevelopment Authority. Mitigation measures to eliminate or avoid any violation of air quality standards must be described.

In addition, a description of any changes to the garage exhaust system, including location of exhaust vents and specifications, and an analysis of the impact on pedestrian level air quality from operation of the exhaust system is required. Measures to avoid any violation of air quality standards must be described.

5. Solid and Hazardous Waste

This information is required only for Option A.

The presence of any contaminated soil or groundwater must be identified, and measures that will be employed to ensure their safe removal and disposal must be described. A copy of the Chapter 21E Site Investigation report must be included in the DPIR.

The generation of solid wastes (construction period and operation of the project) and plans for removal and disposal must be described in the DPIR.

6. Noise

A noise analysis must be performed only for Option A.

The Applicant must provide in the DPIR an evaluation of ambient noise levels in the vicinity of the project.

Anticipated long-term noise increases from project-generated traffic and from the project's building mechanical equipment must be evaluated.

7. Geotechnical Impact

A geotechnical impact analysis must be conducted only for Option A.

An analysis of existing sub-soil and groundwater conditions, potential for ground movement and settlement during foundation construction, and potential impact on adjacent buildings, utility lines, and the Washington Street MBTA subway tunnel is required. This analysis must also include a description of the foundation construction methodology, the amount and method of excavation and disposal of the effects on adjacent buildings, utility lines, and subway tunnel.

8. Construction Impacts

This information is required only for Option A. However, the DPIR must indicate whether any substantially different construction impacts would result under Options B and C.

A construction impact analysis must include a description and evaluation of the following:

- A. Potential dust and pollutant emissions and mitigation measures to control these emissions
- B. Potential noise impact and mitigation measures to minimize increase in noise levels
- C. Location of construction staging areas and construction worker parking
- D. Construction schedule, including hours of construction activity
- E. Access routes for construction trucks and anticipated volume of construction truck traffic
- F. Method of demolition of the existing Hawley Street ramps, control of emissions, asbestos removal (if required), and disposal of the demolition waste, including identification of the disposal site
- G. Measures to protect the public safety

9. Rodent Control

A rodent control analysis is required only for Option A.

An analysis of the impact of project construction on rodent populations and a description of the proposed rodent control program and compliance with applicable

City and State regulatory requirements is required.

IV. URBAN DESIGN COMPONENT

1. Urban Design Objectives

The following urban design objectives which are derived from the guidelines in Chapter 7 of the Midtown Cultural District Plan must be addressed for each option in the analysis required in the Draft Project Impact Report.

A. Massing and Height

As was discussed above, the Proposed Project exceeds the height and FAR limits in Article 27D of the Code and in the proposed Midtown Cultural District Plan which calls for 235-350 foot heights and FARs of 12. The plan also suggests an average floor plate size of 22,500 square feet. The reduced floor plates should begin immediately above the base. The proposed 25,000 square foot floorplate exceeds both the proposed guidelines in the Plan and the standard established and applied in development review by the BRA during the past four years. Reductions in height and bulk should be accomplished by redistribution from tower to mid-rise element and/or by the reduction of the program. Design studies should include options that complete the streetwall on Arch Street and options that preserve the views from Arch Street of the mural and 64 Franklin Street.

B. Orientation

Downtown Boston's splayed street-grid and the curve of Franklin Street create views and a charming atmosphere but also create an environment in which it is difficult to obtain and maintain one's sense of direction. The Plan recommends "maintaining the established streetwall plan...to retain the street's continuity". Therefore, the tower element should reinforce the street pattern and provide strong visual clues on the skyline by reflecting the alignment of the streets. Specifically, a tower configuration that more fully fills the Hawley-Arch parcel and vertically continues the street lines of Hawley, Milk, Arch, and Franklin Streets must be explored.

C. Views

The plan recommends that "new building will emphasize

significant view corridors and provide new visual markers". Efforts to reopen Hawley Street to cars and pedestrians are commendable. Further efforts should be undertaken to enhance views on Hawley Street north from Franklin Street and south from Milk Street by modifying tower massing to reinforce the street line, opening the base to permit a taller connection, and designing the tower and base facades to acknowledge the views.

D. Articulation

The parcel for the Proposed Project, created by Urban Renewal, reflects the scale of the 1960's rather than the more traditional and comfortable scale of Boston's Commercial Palace District. The Plan however states that "bases of new buildings...will respond to the height width, Bay Rhythm, and massing of surrounding buildings". The project should be articulated as separate but related vertical building elements to reinforce the more typical building dimensions in the area.

E. Microclimate

The setbacks of the tower from Franklin and Washington Streets help to preserve the scale and character of the shopping district. However, as proposed in the PNF, the Proposed Project does not otherwise conform to the streetwall and setback standards proposed in the Midtown Cultural District Zoning Plan. The Proposed Project must conform to those standards as well as the other design and environmental standards in the proposed Plan which require that new projects "minimize the amount of new shadows on the districts parks, public plazas, major pedestrian streets, and significant historic structures". Particular care must be taken to avoid new shadow on Filene's Park, Five-Cent Savings Park, and on the facade, clock, and steeple of the Old South Meeting House.

F. Scale and Detail

The Plan states "facade designs that are sympathetic to the historic character of the district will enhance the quality of the area's public realm and the pedestrian experience of the streets". The Proposed Project is located in a district characterized by richly detailed, masonry buildings. The project should relate strongly to the district regarding the overall wall treatment which is solid with punched, vertically organized openings rather than grid and infill. The arcades and entries should reflect the traditional details found in



the neighborhood. Facade treatment should acknowledge the context through the use of cornices, belt courses, and other traditional devices.

G. Pedestrian Environment

The Proposed Project must enhance the pedestrian environment by means described in the proposed Midtown Cultural District Zoning Plan, Section 38-16.6.

2. Urban Design Submission Materials

In order to determine that the Proposed Project is (a) architecturally compatible with surrounding structures; (b) exhibits an architectural concept that enhances the urban design features of the subdistrict in which it is located; (c) augments the quality of the pedestrian environment; and (d) is consistent with the established design guidelines that exist for the area, the following items must be submitted for Option A only except where otherwise noted:

- A. Written description of program elements and space allocation for each element (This must be submitted for Options A, B, and C)
- B. Plan for the surrounding area and district and sections at an appropriate scale (1" = 50' or larger) showing relationships of the Proposed Project to the surrounding area's and district's:
 - o Massing
 - o Building height
 - o Scaling elements
 - o Public space/open space
 - o Major topographic features
 - o Pedestrian and vehicular circulation
 - o Land use
- C. Black and white 8" x 10" photographs of the site and neighborhood (Information need only be submitted for Option A)
- D. Sketches, diagrams, and photographs where relevant, to clarify design issues and massing options
- E. Eye-level perspective(s) (reproducible line drawings) showing the proposal in the context of the surrounding area (This must be submitted for Options A, B and C)



- F. Aerial views of the project
- G. Site sections at 1" = 20' or larger showing relationships to adjacent buildings and spaces
- H. Site plan at an appropriate scale (1" = 20' or larger) showing:
 - o General relationships of proposed and existing adjacent buildings and open space
 - o Open spaces defined by buildings on adjacent parcels and across streets
 - o General location of pedestrianways, driveways, parking, service areas, streets, and major landscape features
 - o Pedestrian, handicapped, vehicular and service access and flow through the parcel and to adjacent areas
 - o Survey information, such as existing elevations, benchmarks, and utilities
 - o Phasing possibilities
 - o Construction limits
- I. Proposed schedule for development of project
- J. Massing model at 1" = 40' for use in the BRA's downtown base model and a study model of 1" = 16' showing facade design
- K. The following information must be submitted for Options A, B and C. Drawings at an appropriate scale (1" = 8' or larger) describing architectural massing, facade design and proposed materials including:
 - o Building and site improvement plans
 - o Elevations in the context of the surrounding area
 - o Sections showing organization of functions and spaces
 - o Preliminary building plans showing ground floor and typical upper floor(s)

Submission materials for Design Development and Contract Documents can be found in Appendix 2.

V. HISTORIC RESOURCES COMPONENT

An historic resources analysis must be performed only for Option A.

1. Description of the project site in relation to the

National Register Districts and the other architecturally and historically significant areas and buildings identified by the Boston Landmarks Commission (BLC) as listed below and possible effects such as shadow, scale impacts, and facade image against backdrop of the tower on such districts, areas, or buildings.

Due to location, some of the impacts will be identical, and the assessment can treat clusters of buildings. Each of these structures is within a two block radius of the proposed development and is either listed on the State and National Register of Historic Places, or has been designated or petitioned for designation as a Boston Landmark:

National Register and Register Eligible Districts

Commercial Palace District
Newspaper Row

Architecturally and historically significant buildings identified by the BLC:

Old South Meeting House, 308 Washington St. (I)
20-30 Bromfield Street (II)
Wesleyan Association Bldg., 32-8 Bromfield St. (II)
Filenes, 384-426 Washington Street (II)
Wigglesworth Building, 89-93 Franklin (II)
International Trust Company Bldg., 45 Milk St. (II)
Old South Building, 290-306 Washington St. (III FS)
Jewelers Building, 371-379 Washington St. (III F.S.)
42-62 Franklin (III)
64-70 Franklin (III)
72-74 Franklin (III FS)
Boston Safe Deposit Co., 86-102 Franklin (II)
41-47 Franklin (III)
59-51 Franklin (V)
53-55 Franklin (V)
57-63 Franklin (III)
65-71 Franklin (III)
Columbian Nat'l Life Ins., 77-83 Franklin (III)
85-87 Franklin Street (III)

A letter from the Boston Landmarks Commission is included in Appedex 6.

V. INFRASTRUCTURE SYSTEMS COMPONENT

An infrastructure impact analysis must be performed only for Option A at this time.



The DPIR must include an evaluation of the Proposed Project's impact on the capacity and adequacy of existing water, sewerage, energy (including gas and steam), and electrical (including telephone, computer, cable, etc.) utility systems, and the need reasonably attributable to the Proposed Project for additional systems facilities.

Any system upgrading or connection requiring a significant public or utility investment, or creating a significant disruption in vehicular or pedestrian circulation, or affecting any public or neighborhood park or streetscape improvements, comprises an impact which must be mitigated. In the DPIR the Applicant must analyze such impacts and specific mitigation measures, and must include in the analysis all proposed projects in the Midtown Cultural District for which a PNF has been submitted as of the date of this Scoping Determination.

Thorough consultation with the planners and engineers of the utilities is required and must be referenced in the DPIR. A presentation of the Proposed Project, with special focus on infrastructure (and transportation and public improvements) issues before the Transportation Liaison Committee is required.

Because the proposed structure is essentially an addition to an existing framework, the infrastructure analysis must show the differential between existing and proposed buildouts. The impact study analysis must indicate whether new utility connections will be made, or existing ones enlarged, and address any utility relocations, for example, made necessary by any restructuring of the foundation.

VII. AGREEMENTS

The following must be provided in form and content satisfactory to the appropriate signatory public agencies before the Proposed Project can receive final approval. They are not required for the DPIR.

1. If applicable, Cooperation Agreement, pursuant to Section 31-14 of the Code, to provide for monitoring of continued compliance with the Final Project Impact Report, including, but not limited to, Transportation Access Plan Agreement and Construction Management Plan Agreement
2. Development Impact Project Agreement pursuant to Articles 26A and 26B of the Code
3. Boston residents Construction Employment Plan, pursuant

to Chapter 12 of the Ordinances of 1986 of the City of Boston, as amended by Chapter 17 of said Ordinances, and Executive Order Extending Boston Residents Job Policy, signed by the Mayor on July 12, 1985

4. Land Disposition Agreement and other documentation required to effect transfer of the parcel within the project area currently owned by the BRA.

APPENDICES

Appendix 1

REQUIRED FINANCIAL INFORMATION

REQUIRED FINANCIAL INFORMATION

DEVELOPMENT PRO FORMA includes all the information normally found in a development proforma, by phase. This includes, but is not limited to:

Land acquisition costs, per land square foot and total, by parcel.

Attribution of acquisition expense over project components (per FAR square foot office, retail, parking, etc.).

All hard costs on a per-unit and total basis, by phase. (disaggregated into base building, tenant improvement work, rehabilitation work, garage cost, site work, furniture, fixtures and equipment, etc.)

All soft costs on a per-unit and total basis, by phase. (disaggregated into individual line items such as architectural, engineering, legal, accounting and developer's fees and any other professional fees, insurance, permits, real estate tax during construction, etc.)

All contingencies on a per-unit and total basis, by phase (specify whether contingency is on hard cost, soft cost, or total cost).

All assumptions regarding financing terms on acquisition, pre-development, and construction loans, by phase (including financing fees, interest rates, terms, drawdown assumptions, terms, participations, amortization).

Calculation of housing and jobs linkage obligation, and anticipated payment method (over term of obligation or on a net present value basis).

Any other project-related expenses not within any of the above categories.

Calculation of total development cost by component, including total and per unit breakdown (e.g. per square foot office, retail, etc., per parking space, etc.)

Sources of debt and equity for total project costs.

Appropriate return measures (return on equity, return on total development cost, internal rate of return; specify method of calculation and hurdle rates).

10-YEAR OPERATING PRO FORMA includes all the information normally found in an operating proforma, on a yearly basis. This includes, but is not limited to:

Tabulation of gross and net (leasable) square feet for all commercial space.

Schedule of all rents on a per square foot and total basis (including anticipated garage rates and occupancy).

Anticipated operating expenses and real estate taxes on per square foot and total basis, and clear explanation of division of expenses between owner and tenant (includes all commercial space, hotel, and garage)

All other expense and vacancy assumptions set forth to calculate cash available for debt service.

Anticipated leasing patterns (5-yr, 10-yr, etc.), lease-up rates and calculation of operating deficits if any.

Tenant inducements including free rent, tenant improvement allowances, etc.

Calculation of debt service, before tax cash flow, debt coverage ratios.

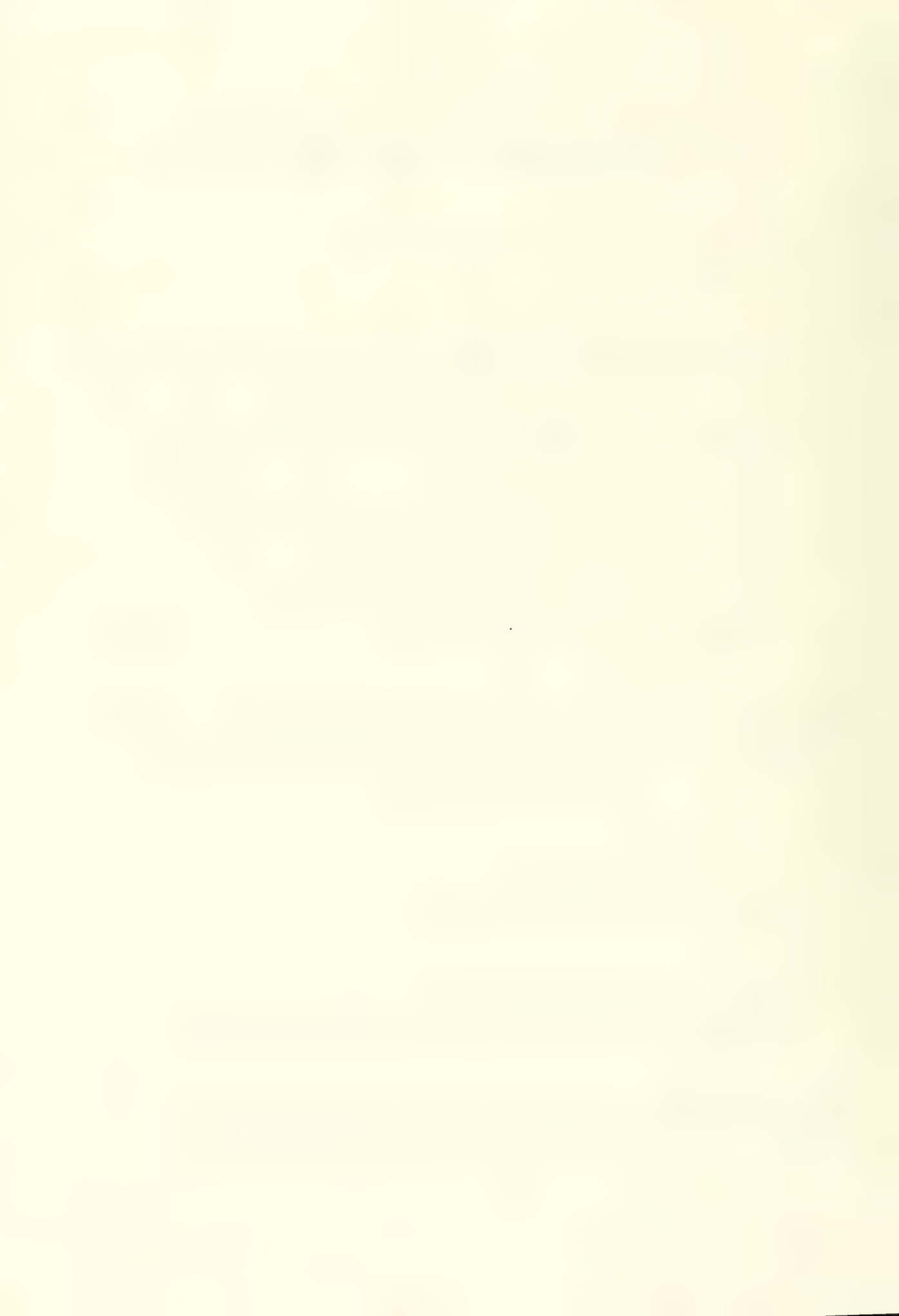
Appendix 2

SUBMISSION REQUIREMENTS FOR DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS SUBMISSIONS

Appendix 2

SUBMISSION REQUIREMENTS FOR DESIGN DEVELOPMENT AND CONTRACT DOCUMENTS SUBMISSIONS

1. Revised written description of project
2. Revised site sections
3. Revised site plan showing:
 - a. Relationship of the proposed building and open space to existing adjacent buildings, open spaces, streets, and buildings and open spaces across streets
 - b. Proposed site improvements and amenities including paving, landscaping, lighting and street furniture
 - c. Building and site dimensions, including setbacks and other dimensions subject to zoning requirements
 - d. Any site improvements or areas proposed to be development by some other party (including identification of responsible party)
 - e. Proposed site grading, including typical existing and proposed grades at parcel lines
4. Dimensioned drawings at an appropriate scale (e.g., 1" = 8') developed from approved schematic design drawings which reflect the impact of proposed structural and mechanical systems on the appearance of exterior facades, interior public spaces, and roofscape including:
 - a. Building plans
 - b. Preliminary structural drawings
 - c. Preliminary mechanical drawings
 - d. Sections
 - e. Elevations showing the project in the context of the surrounding area as required by the Authority to illustrate relationships or character, scale and materials
5. Large-scale (e.g., 3/4" = 1'0") typical exterior wall sections, elevations and details sufficient to describe specific architectural components and methods of their assembly



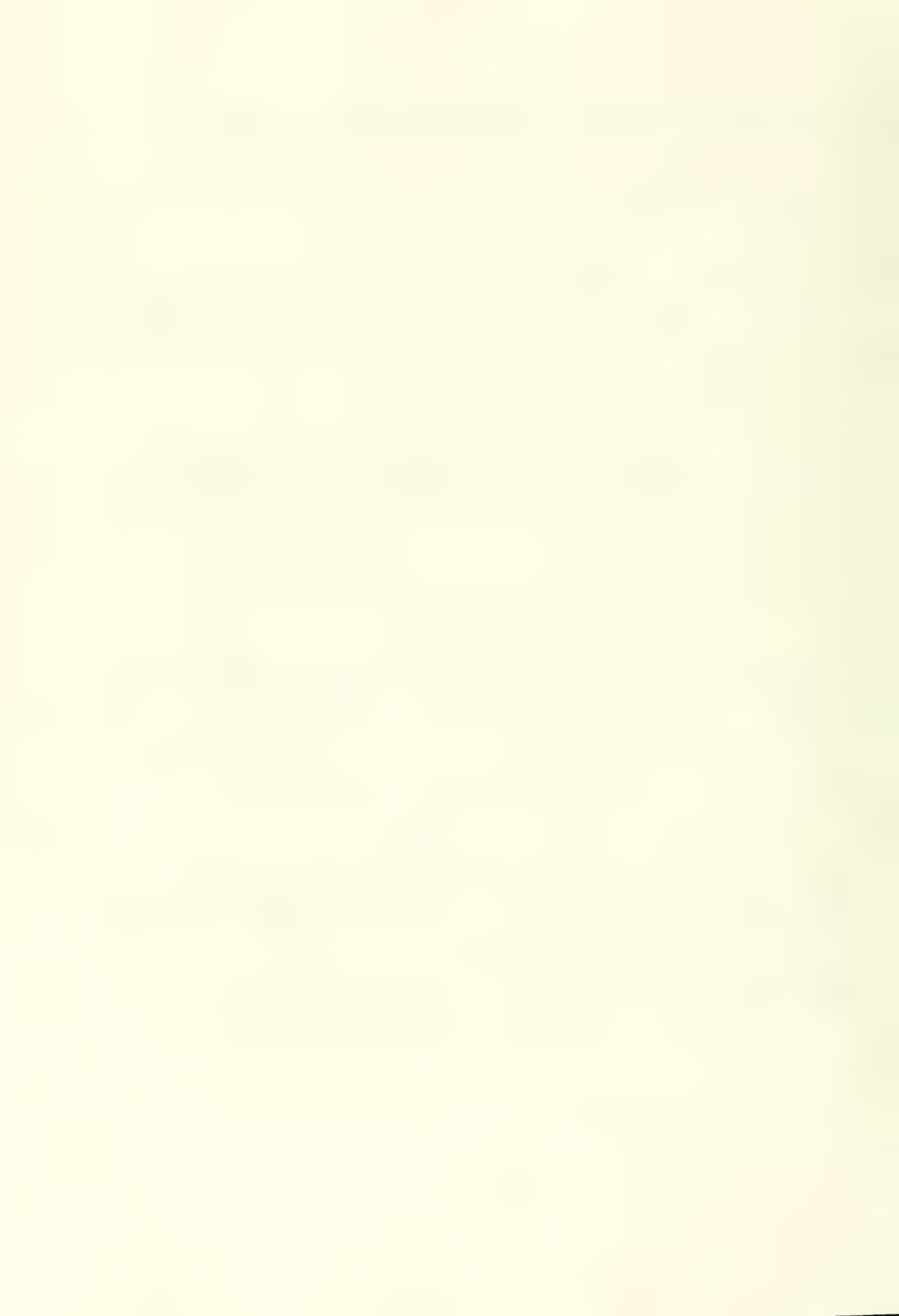
6. Outline specifications of all materials for site improvements, exterior facades, roofscape, and interior public spaces
7. Eye-level perspective drawings showing the project in the context of the surrounding area
8. Samples of all proposed exterior materials
9. Complete photo documentation (35mm color slides) of above components including major changes from initial submission to project approval

Phase III Submission: Contract Documents

1. Final written description of project
2. A site plan showing all site development and landscape details for lighting, paving, planting, street furniture, utilities, grading, drainage, access, service, and parking
3. Complete architectural and engineering drawings and specifications
4. Full-size assemblies (at the project site) of exterior materials and details of construction
5. Eye-level perspective drawings or presentation model that accurately represents the project, and a rendered site plan showing all adjacent existing and proposed structures, streets and site improvements
6. Site and building plan at 1" = 100' for Authority's use in updating its 1" = 100' photogrammetric map sheets

Phase IV Submission: Construction Inspection

1. All contract addenda, proposed change orders, and other modifications and revisions of approved contract documents which affect site improvements, exterior facades, roofscape, and interior public spaces shall be submitted to the Authority prior to taking effect
2. Shop drawings of architectural components which differ from or were not fully described in contract documents



Appendix 3

LIST OF PROPOSED PROJECTS AND PROJECTS UNDER CONSTRUCTION IN THE STUDY AREA

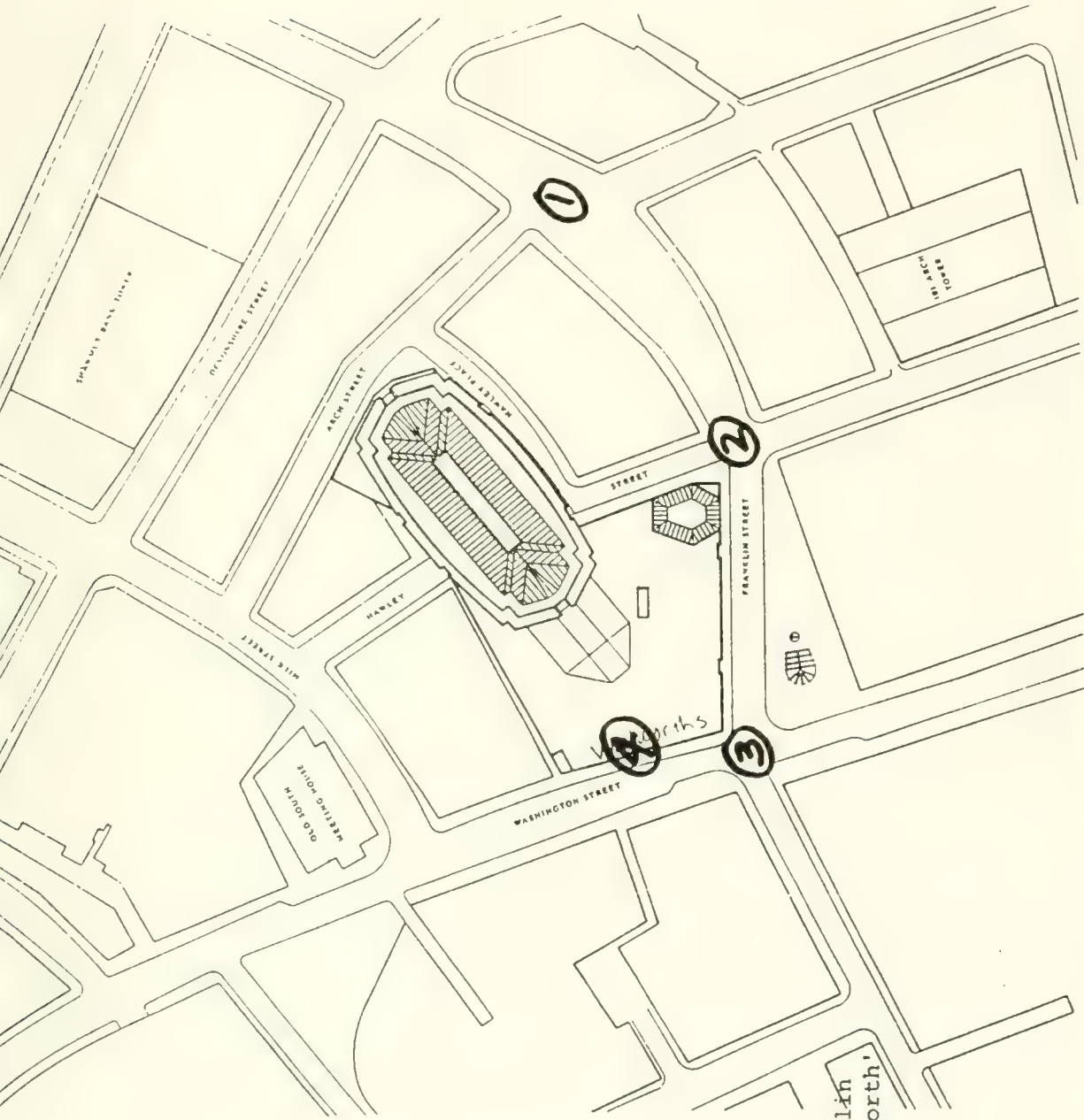
PROPOSED PROJECTS INCLUDED IN ANALYSIS FOR DPIR

1. 110-120 Tremont Street
2. Parkside East
3. Parkside at Mason
4. 125 Summer Street
5. 600 Washington Street
6. Pavilion at Park Square
7. 146 Boylston Street
8. Lafayette Place II/Jordan Marsh
9. Kingston Bedford
10. 90 Tremont Street
11. 45 Province Street
12. 64-74 Franklin Street
13. 73 Tremont Street Addition
14. 295 Devonshire Street
15. South Cove Parcel C-2
16. Parcel R-3/R-3A
17. Don Bosco
18. One Bowdoin Square

Appendix 4

INTERSECTIONS TO BE ANALYZED





1. Franklin/Arch
2. Franklin/Hawley
3. Washington/Franklin
4. Washington/Woolworth'
Entrance



SITE PLAN

PEDESTRIAN COUNT DATA

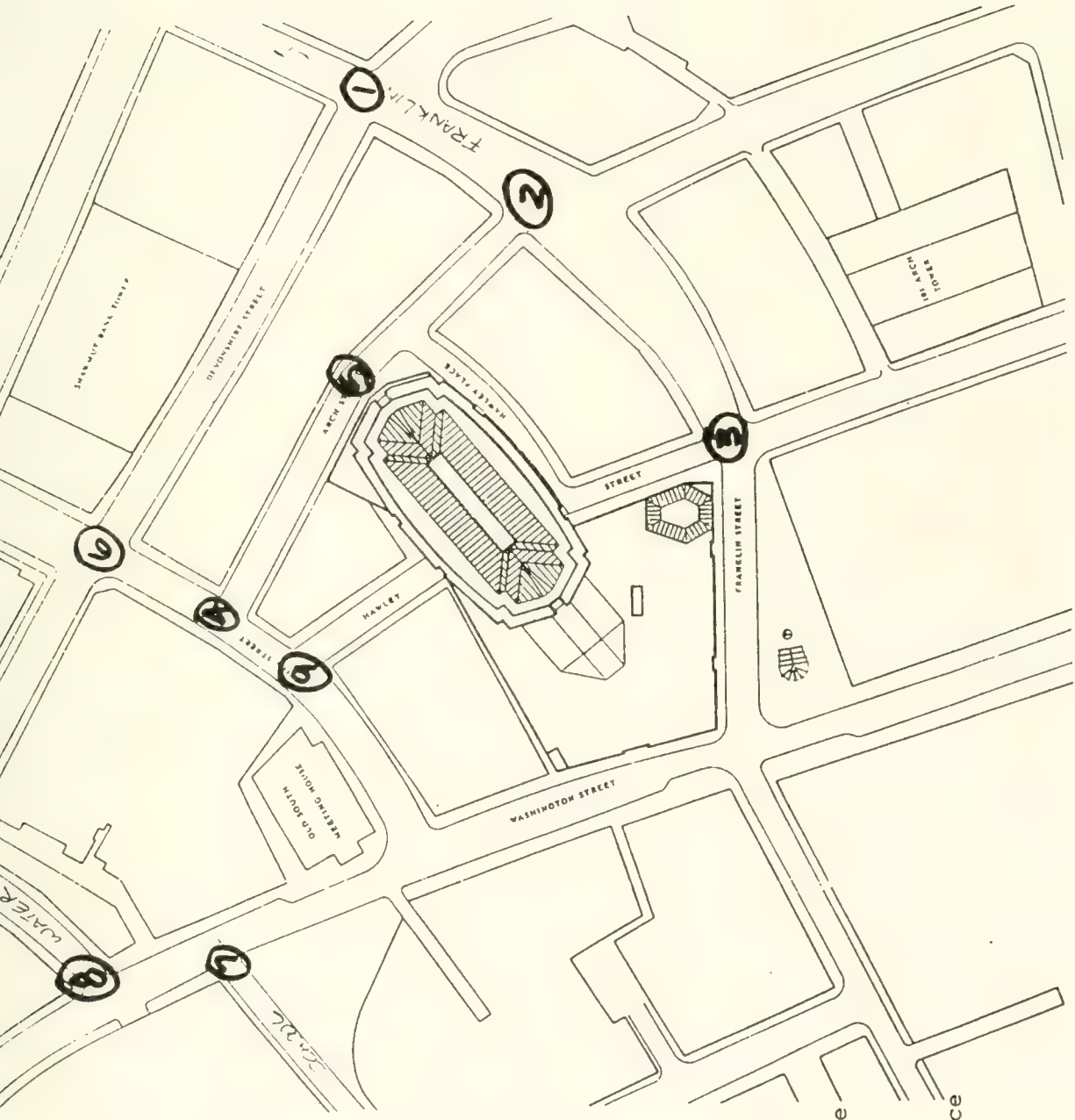
FORTY FRANKLIN

OWNER: FRANK-KING ASSOCIATES L.P. DEVELOPER: OLD STATE MANAGEMENT CORP.
ARCHITECTS: CRANG AND BOAKE INC. & SHEPLEY BULFINCH RICHARDSON AND ABBOTT

SCALE 0 10 25 50 100

OCT. 12, 1988





SITE PLAN

SCALE 0 10 25 50 100

OCT. 12. 1988

1. Franklin/Devonshire
2. Franklin/Arch
3. Franklin/Hawley
4. Milk/Arch
5. Arch/Garage Entrance
6. Milk/Devonshire
7. Washington/School
8. Washington/Water
9. Milk/Hawley

INTERSECTION COUNT DATA

FORTY FRANKLIN

OWNER: FRANK-KING ASSOCIATES L.P. DEVELOPER: OLD STATE MANAGEMENT CORP.
 ARCHITECTS: CRANG AND BOAKE INC. & SHEPLEY BULFINCH RICHARDSON AND ABBOTT



Appendix 5

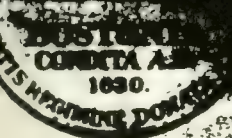
CRITERIA FOR ACCEPTABLE WIND CONDITIONS

PROPOSED PROJECTS INCLUDED IN ANALYSIS FOR DPIR

1. 110-120 Tremont Street
2. Parkside East
3. Parkside at Mason
4. 125 Summer Street ✓
5. 600 Washington Street
6. Pavilion at Park Square
7. 146 Boylston Street
8. Lafayette Place II/Jordan Marsh ✓
9. Kingston Bedford ✓
10. 90 Tremont Street
11. 45 Province Street
12. 64-74 Franklin Street
13. 73 Tremont Street Addition
14. 295 Devonshire Street
15. South Cove Parcel C-2
16. Parcel R-3/R-3A
17. Don Bosco
18. One Bowdoin Square

Appendix 6

LETTER FROM THE BOSTON LANDMARKS COMMISSION



**Boston
Landmarks
Commission**

City of Boston
The Environment
Department

Boston City Hall/Room 805
Boston, Massachusetts 02201
7/725-3850

December 28, 1988

Ms. Cindy Schlessinger
Boston Redevelopment Authority
Boston City Hall
Boston, MA 02201

Dear Cindy:

The staff of the Boston Landmarks Commission has reviewed the Project Notification Form for 100 Franklin Street (Woolworths) submitted by E.H. Woolworths, Inc. for the Old State Management Corp. There are some omissions in the list of historic resources which may be impacted by the proposed development. Section 2 lists numerous structures which are adjacent to or near the proposed development. Six structures are designated historic structures.

The staff requests that the impacts of shadow, scale and facade image against backdrop of the tower on the following structures be assessed. Due to location, some of the impacts will be identical, and the assessment can treat clusters of building. Each of these structures is within a one block radius of the proposed development and is either listed on the State and National Register of Historic Places, or has been designated or petitioned for designation as a Boston landmark.

- City Hall Building, Room 308 Washington St. (I)
City Hall Building, Room 411
Washburn State Office Bldg., 27-6 Bromfield St. (II)
First National Bank, Washington Street. (II)
Fidelity Trust Company Bldg., 29-33 Franklin (II)
Fidelity Trust Company Bldg., 45 Milk St. (II)
General Building, 290-306 Washington St. (III PS)
General Building, 371-379 Washington St. (III P.S.)



Boston Landmarks Commission

City of Boston
The Environment
Department

Boston City Hall/Room 805
Boston, Massachusetts 02201
617/725-3850

In addition to the Newspaper Row District mentioned in the PNF (Section E.1.) the staff requests that the impacts of additional height, scale, and shadow on the structures within the Commercial Palace District be assessed. The structures listed below are within a two block radius of the proposed development and are contributing structures within the Commercial Palace District which was given a Determination Of Eligibility for the National Register on Sept. 5, 1985.

Commercial Palace District (partial list):

42-62 Franklin (III)
64-70 Franklin (III)
72-74 Franklin (III FS)
Boston Safe Deposit Co., 86-102 Franklin (II)
41-47 Franklin (III)
59-51 Franklin (V)
53-55 Franklin (V)
57-63 Franklin (III)
65-71 Franklin (III)
Columbian Natl Life Insurance, 77-83 Franklin (III)
85-87 Franklin Street (III)

In addition, the staff would like to see information regarding the potential of archaeological sites within the project area.

Thank you for the opportunity to comment.

Sincerely,

Judith B. McDonough
Executive Director
Boston Landmarks Commission
Page 2

clh:1482E

OLD STATE MANAGEMENT CORP.

EXCHANGE PLACE
53 STATE STREET, 37TH FLOOR
BOSTON, MASSACHUSETTS 02109
(617) 742-9888

EDWARD ZIELINSKI
VICE PRESIDENT

July 26, 1989

Mr. Stephen Coyle
Director
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

RE: FORTY FRANKLIN PROJECT

Dear Mr. Coyle,

This letter is to confirm the three options of the Forty Franklin project which are to be studied in the draft Project Impact Report.

Three options were denoted in the original scoping determination of February 2, 1989. Because of changes in the Midtown Cultural District Zoning, namely the redefinition of "substantial accord", it is necessary to make this clarification. The project has also developed in the interim and has additional parking built into the existing building envelope as well as several architectural changes.

The following alternatives are consistent with the aforementioned changes.

Option A: A project with a height of 436.5 feet and an FAR of 18.4.

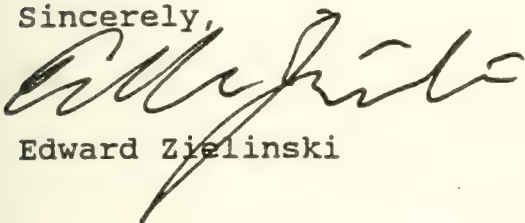
Option B: A project with an enhanced height of 155 feet and an FAR of 10.

Option C: A project with a height of 362.5 feet and an FAR of 16 which complies with Article 38 of the Boston Zoning Code.

Studies of these three options should provide a full compliment of information to enable all parties to decide in which direction this project should proceed.

If you have any questions or comments, please contact me.

Sincerely,

A handwritten signature in dark ink, appearing to read 'E. Zielinski', written over the printed name.

Edward Zielinski

cc: Ms. Jollene Dubner
Mr. Juan Loveluck

E179

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS

MICHAEL S. DUKAKIS
GOVERNOR

JOHN DEVILLARS
SECRETARY

January 26, 1989

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS
ON THE
ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME :Forty Franklin
PROJECT LOCATION :Boston
EOEA NUMBER :7472
PROJECT PROPONENT :Old State Management Corporation
DATE NOTICED IN MONITOR :December 12, 1989

Pursuant to the Massachusetts Environmental Policy Act (G.L., c.30, s.61-62H) and Sections 11.04 and 11.06 of the MEPA regulations (301 CMR 11.00), I hereby determine that the above project requires the preparation of an Environmental Impact Report.

The proposed project consists of an addition to and the reconstruction of the facade and arcades of the existing Woolworth/garage building located at Washington, Franklin, Hawley and Arch Streets, plus the construction of a new office building located over the existing garage entry ramp area between Arch and Hawley Streets. The new office building will contain 500,000 s.f. of usable space.

The project is categorically included for the preparation of an Environmental Impact Report pursuant to the MEPA Regulations at 301 CMR 11.25 (15). In addition, the proponent will be subject to the Boston Redevelopment Authority's (BRA) Article 31 of the Boston Zoning Code and will be required to file a Project Impact Report. Article 31 provides for a coordinated environmental review with MEPA and a single set of documents.

I have reviewed the BRA's draft scope for the proposed project. The subject areas included in BRA's draft scope include transportation (vehicular, parking, access, loading, public transportation and pedestrian circulation), construction management, wind, shadow daylight, air quality, solid and

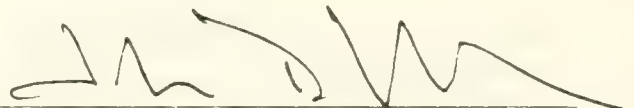
hazardous waste, noise, geotechnical impact, construction impacts, rodent control, urban design issues, historic impacts, and infrastructure impacts.

The BRA's draft scope is comprehensive. Barring no major changes in this scope, I will adopt the final BRA scope for a coordinated MEPA/BRA review of the project. The proponent should take note of the comments received during the MEPA review of the ENF and respond to them in the EIR/Project Impact Report (PIR).

When complete, the EIR/PIR should be circulated according to pertinent regulations and to the authors of the comments listed below.

January 26, 1989

DATE



JOHN DeVILLARS, SECRETARY

Comments received:

BRA Dec. 28, 1989

City of Boston Environment Department Dec. 30, 1989

EOTC Jan. 4, 1989

MAPC Jan. 3, 1989

MHC Jan. 6, 1989

JPD/JMD/jmd

LOCATION:

Boston

010

PROPOSER:

☐ CONSULTANT:

DEQ:

ONE

WINTER

STREET

☐ AIR QUALITY

☐ WETLANDS

☐ WATERWAYS

☐ WATER POLLUTION CONTROL

☐ HAZARDOUS WASTE

☐ WATER SUPPLY

☐ REGIONAL OFFICE IN DISTRICT ()

☐ HDC-20 SOMERSET STREET-ATTN:

☐ FOOD & AGRICULTURE-100 CAMBRIDGE STREET-21ST FLOOR-ATTN:

☐ COASTAL ZONE MANAGEMENT-100 CAMBRIDGE STREET-20TH FLOOR-ATTN: JIM O'CONNELL

☐ DEN-100 CAMBRIDGE STREET-19TH FLOOR

☐ WATER RESOURCES, ATTN:

☐ WATERWAYS, ATTN:

☐ PLANNING DIVISION, ATTN:

☐ DEN REGIONAL OFFICE IN DISTRICT () ATTN:

☐ FISH & WILDLIFE, 100 CAMBRIDGE STREET, 19TH FLOOR

☐ MARINE FISHERIES, ATTN: ELIEN BELLE

☐ NATURAL HERITAGE PROGRAM, ATTN:

☐ FIELD OFFICE IN DISTRICT ()

☐ OTHER STATE AGENCIES

☐ MASSACHUSETTS HISTORICAL COMMISSION (MHC)

60 BOYLSTON STREET, BOSTON, MA 02116

ATTN:

TEN ☐ DPW

ATTN:

PART ☐ MBTA

ATTN:

PLAZA ☐ MASSPORT

ATTN:

☐ BOST

ATTN:

☐ MASS AERONAUTICS COMM.

ATTN:

☐ MASS DPW REGIONAL DISTRICT IN ()

ATTN:

☐ BOSTON REDEVELOPMENT AUTHORITY (BRA)

1 CITY HALL SQUARE, BOSTON, MA 02201, ATTN:

☐ US ARMY, CORPS OF ENGINEERS (COE)

524 TRAPELO ROAD, WALTHAM, MA 02155, ATTN:

☐ REGIONAL PLANNING COMMISSION

CITY/TOWN:

☐ CONSERVATION COMMISSION

☐ PLANNING BOARD/COMMUN. DEVELOP.

☐ SELECTMEN'S OFFICE

☐ OTHER

☐ OTHERS:

MEETING DATE:

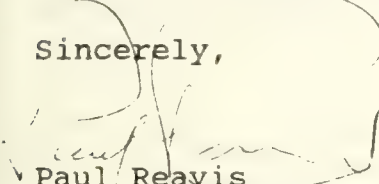
TIME:

PLACE:

infrastructure systems component evaluating impacts on utility systems, water quality, and energy resources. We expect to issue the Project Impact Report scope shortly and will forward a copy to your office.

Since the project is subject to the environmental review requirements of both MEPA and the Boston Redevelopment Authority, Section 31.13 of Article 31 of the Zoning Code provides for a coordinated environmental review and the submission of a single set of documents to satisfy the requirements of both MEPA and Article 31. We concur that a joint review would be appropriate for this project and request that a joint scope for both the Draft EIR and the Draft ~~PIR~~ be issued.

Sincerely,



Paul Reavis
Assistant Director for
Engineering and Design Services

cc: Dan Hart
Old State Management Corp.

BOSTON
REDEVELOPMENT
AUTHORITY

Donald L. Flynn

John Coyle

at, Hal Squitieri
MA-22-1
22-4306

RECEIVED

DEC 28 1988

OFFICE OF THE SECRETARY OF
ENVIRONMENTAL AFFAIRS

Secretary James S. Hoyte
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

Attention: MEPA Unit

Re: EOE #7472: Forty Franklin

Dear Secretary Hoyte:

Pursuant to regulations implementing M.G.L., Chapter 30, Sections 62-62H, the Boston Redevelopment Authority has reviewed the above-referenced Environmental Notification Form and submits the following comments.

The proposed Forty Franklin project consists of an addition to and the complete reconstruction of the existing Woolworth store/garage building located at Washington, Franklin, Hawley and Arch Streets in downtown Boston, together with the construction of a twenty-two story office building above the existing garage entry ramp area between Arch and Hawley Streets. The garage is to be modified by closing the Arch Street entrance/exit and by reconnecting Hawley Street to form a through street from Franklin Street to Milk Street with a new garage entrance/exit from Hawley Street. Approximately one million square feet of retail, office and parking space will be provided.

On October 18, 1988, the project proponent - Old State Management Corporation - filed a Project Notification Form with the Boston Redevelopment Authority pursuant to Article 31 of the Boston Zoning Code. In compliance with the development review procedures of Article 31, the project proponent will be required to file a Project Impact Report with the Authority. At the present time, the staff of the Authority is preparing the scope of the report. We anticipate that the scope of issues required to be evaluated in the Project Impact Report will include traffic and parking impacts (including a Transportation Access Plan); an environmental protection component examining issues of wind and shadow impact, daylight analysis, air quality and noise impacts, solid and hazardous wastes, geotechnical and construction impacts, and rodent control; urban design and historic resources impacts; and an

In addition to the Newspaper Row District mentioned in the ENF, we request that the shadow impact from the proposed development also be examined on the structures within the Commercial Palace District. The structures listed below are within a two block radius of the proposed development and are contributing structures within this District which was given a Determination of Eligibility for the National Register on September 5, 1985.

Commercial Palace District (partial list)

42-62 Franklin St.
64-70 Franklin St.
72-74 Franklin St.
86-102 Franklin St., Boston Safe Deposit Co.
41-47 Franklin St.
59-51 Franklin St.
53-55 Franklin St.
57-63 Franklin St.
65-71 Franklin St.
77-83 Franklin St., Columbian National Life Insurance
85-87 Franklin St.

2. The building is within the Boston Parking Freeze area. The applicant must apply to the Boston Air Pollution Control Commission for a permit in order to modify or add parking spaces to the project.
3. The effects of shadows from the proposed building on the surrounding parks should be detailed thoroughly. In the ENF it states that there are already shadows on the parks located around the site. However, even if this is the case, the proposed building may increase the amount of time that these parks are in shade.
4. In the ENF it states that measures will be taken to "minimize or mitigate" the various construction impacts. These measures should be clearly described in the EIR.

We appreciate the opportunity to comment and we look forward to reviewing the EIR.

Sincerely, /

L. M. Downey, Director
Environment Department



December 29, 1988

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DEC 30 1988

Mr. James Hoyte, Secretary
Executive Office of Environmental Affairs
100 Cambridge Street, 20th Fl.
Boston, MA. 02202

City of Boston
Environment
Department

ATTN: MEPA Unit, EOEA #7472, Forty Franklin

Raymond L. Flynn
Mayor

Dear Secretary Hoyte:

Suzanne M. Downey
Director

The City of Boston Environment Department has reviewed the Environmental Notification Plan for Forty Franklin and would like to offer our comments.

City Hall Room 805
Massachusetts 02201
25-4410 or 725-3850

1. In Section B, "Historic and Archeological Resources", there are omissions in the list of historically significant structures which might be effected by the proposed development. The list below delineates historically significant structures which are adjacent to or nearby the proposed development. These buildings are either listed on the State and National Register of Historic Places, or has been designated or petitioned for designation as a Boston Landmark.

Old South Meeting House, 308 Washington St.(National Register listed)

Filenes, 384-426 Washington St.(National Register listed)

The Wigglesworth Building, 89-93 Franklin St.(National Register listed)

International Trust Company Building, 45 Milk St.(a Landmark and National Register listed)

20-30 Bromfield St.(a Landmark)

Wesleyan Association Building, 32-38 Bromfield St.(National Register eligible)

Old South Building, 290-306 Washington St.(Landmark Petition)

Jewelers Building, 371-379 Washington St.(Landmark Petition).

The effect of the additional height of the proposed building on the shadows that are cast on these historic structures should be discussed in the EIR.

The Forty Franklin project is located in the air quality parking freeze area. Therefore, the EIR must contain a section describing how the parking spaces will be managed between tenants and commercial customers. The analysis must cover all spaces and not just the new ones.

Given the project's proximity to all public transit facilities, the proponents should actively pursue transit alternatives. The EIR should include: analysis of potential employer and employee transit needs; a method of communication of information on traffic conditions and options for reducing site generated vehicle traffic; provision for carpool matching, vanpools or buspools; possible subsidies for users of public transit, etc.

The proponent should commit to an on site transportation coordinator or join with other area employers to form a transportation management organization which could be patterned after the Friends of Post Office Square. In any event, the mitigation proposed for Forty Franklin should include a serious commitment to transportation management strategies.



The Commonwealth of Massachusetts

Executive Office of Transportation & Construction

Office of the Secretary

10 Park Plaza, Room 3510

Boston, MA 02116-3969

Telephone 973-7000

TLL (617) 973-7366

Michael J. Dukakis

Governor

Frederick P. Salvucci

Secretary

and

M.B.T.A. Chairman

(X) E.N.F. () DRAFT E.I.R. () FINAL E.I.R. No.: 7472

DATE: 12/19/88

DATE RECEIVED: 12/19/88

COMMENTS DUE: 1.2.89

TOWN/CITY:

BOSTON, MASSACHUSETTS

PROJECT PROPONENT:

OLD STATE MANAGEMENT CORPORATION
EXCHANGE PLACE/53 STATE STREET
BOSTON, MA

PROJECT DESCRIPTION: FORTY FRANKLIN, 2-40 FRANKLIN STREET, 342 WASHINGTON STREET, 20-49 ARCH STREET, 35 HAWLEY STREET, BOSTON, MASSACHUSETTS. The proposed project consists of an addition to and the complete reconstruction of the exterior facade and arcades of the existing Woolworth/garage building located at Washington, Franklin, Hawley and Arch Streets, plus the construction of a new office building located over the existing garage entry ramp area between Arch and Hawley Streets. The proposed office building will be twenty-two (22) stories in height and will contain approximately 500,000 S.F. with associated parking for approximately 985 vehicles.

(X) COMMENTS (SEE ATTACHED)

() NO COMMENTS

DATE: 1/3/89

for Frederick P. Salvucci
FREDERICK P. SALVUCCI
SECRETARY

Additional Comments

The project involves the addition of 545,000 square feet of office space yet only anticipates an increase in traffic of approximately 100 vehicles. This raises a question as to how the remaining estimated 5300 new trips per day will be accommodated. The environmental impact report should explain in sufficient detail how they plan to achieve a 98% reduction in automobile access to this site. How does this compare with other projects? Is there another project that has achieved this?

If the proponent is anticipating commuters to utilize the new "fringe" parking sites at North and South Stations an analysis of capacity of these facilities should be undertaken.

Further, the EIR should address impacts of the project on the rapid transit system serving the Downtown Crossing area as well as any bus routes providing service to the area. Specifically the report should address the ability of the existing seating capacity to serve this increased demand. If sufficient capacity is not available on the transit system the proponent should address the ramifications this would have on the ability of the proponent to meet the lofty goals set in the ENF.

DF/mlm
12/14/88

Transp.
(Boston)



Metropolitan Area Planning Council

60 Temple Place, Boston, Massachusetts, 02111-617-451-2770

setting policies and actions in Metropolitan Boston

December 28, 1988

The Honorable John DeVillars, Secretary
Executive Office of Environmental Affairs
MEPA Unit
100 Cambridge Street
Boston, MA 02202

RECEIVED

Jan 3 1989

Project Identification

Project Name: Forty Franklin Street

EOEA#: 7472

Project Proponent: Old State Management Corp.

MAPC: ENF-89-32

Location: Boston

Received: 12/2/88

Dear Secretary DeVillars:

In accordance with the provisions of Chapter 30, Section 62, of the Massachusetts General Laws, the Council has reviewed the Environmental Notification Form identified above and offers the following comments:

1. ☐ Environmental Notification Form adequate; no Environmental Impact Report should be required
2. ☐ Before a determination can be made as to whether or not an Environmental Impact Report should be required, additional information should be provided on () probable environmental impacts, () alternatives to proposed action, and/or () measures proposed to mitigate probable impacts.
3. ☒ An Environmental Impact Report () should be required, (x) is categorically required.
4. ☒ Additional comments are attached.

Sincerely,

D.C. Soule

David C. Soule
Executive Director

DCS/DF/mlm

cc: Richard Dimino, MAPC Rep., Boston
Paul Reavis, BRA
Judith Lilla, H. W. Moore Associates, Inc.
Daniel Fortier, MAPC Staff

Inter President

Franklin G. Chary, Vice President

Marjorie A. Davis, Secretary

Martha K. Goggin, Treasurer

Executive Director: David C. Soule



RECEIVED

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[Handwritten signature]

December 28, 1988

Secretary James S. Hoyte
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

ATTN: Joe Freeman, MEPA Unit

RE: Forty Franklin Street, Boston, MA EOE #7472
site of existing Woolworth/garage building

Dear Secretary Hoyte:

Staff of the Massachusetts Historical Commission have reviewed the Environmental Notification Form for the proposed project listed above.

Review of the inventory of Archaeological and Historic Assets of the Commonwealth indicates that the project area is located adjacent to Newspaper Row, the Old South Meeting House, Filene's Department Store, and the International Trust Company, which are listed in the State and National Registers of Historic Places.

The project area is also adjacent to the Commercial Palace Historic District and the Wesleyan Association Building which are listed in the State Register of Historic Places. Currently the Boston Landmarks Commission is petitioning three buildings; 22-28 Bromfield, the Jewelers Building and the Old South Building, for local landmark status.

MHC staff requests that these buildings and districts be included in the scope of the project EIR. MHC requests the opportunity to review plans and elevations of the proposed reconstruction, addition and new construction in order to determine what impact the undertaking may have on historic resources.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800) and M.G.L. Ch. 9, ss.26-27C, as amended by Ch. 254 of the Acts of 1988 (950 CMR 71.00) and MEPA.

If you have any questions, please feel free to contact me.

Sincerely,

[Handwritten signature: Deirdre Brotherson]

Deirdre Brotherson
Preservation Planner

Massachusetts Historical Commission

Massachusetts Historical Commission, 100 Cambridge Street, Boston, MA 02202

DB/kh 100 Cambridge Street, Boston, MA 02202 (617) 727-8470

Office of the Secretary of State, 100 State Street, Boston, MA 02109



The Commonwealth of Massachusetts

Executive Office of Transportation & Construction

Office of the Secretary

10 Park Plaza, Room 3510

Boston, MA 02116-3969

Telephone 973-7000

TLS (617) 973-7306

Michael S. Dukakis
Governor

Federick P. Salucci
Secretary

and
U.B.T.S. Chairman

EOTC COMMENTS ON THE ENF FOR FORTY FRANKLIN
BOSTON, MA
EOEA #7472

EOTC has reviewed the ENF for Forty Franklin, 2-40 Franklin St., Boston, MA. Proposed is an addition and complete reconstruction of the exterior facade and arcades of the existing Woolworth/garage building located at Washington, Franklin, Hawley and Arch Streets, plus the construction of a new 500,000 square foot office building located over the existing garage entry ramp area between Arch and Hawley Streets. An EIR should be required.

The office building will be twenty two stories high. There are 888 parking spaces in the existing garage. Plans include development of another 49-97 spaces. The ENF claims that only 97 additional vehicle trips will be generated by the development. This is clearly wrong. The proposed project will add 500,000 net square feet of office space and the tenants will have to make trips to the site. Further, the ENF states that there are 888 existing trips which assumes only one trip per parking space per day. This is questionable. This information should be corrected in a detailed traffic analysis which should be required as part of an EIR. The proponent should use the ITE Trip Generation Manual, 4th Edition. If there is documentation which indicates the historic parking garage usage, it too should be included.

It is clear that this project will have a definite impact on traffic and transportation systems in the site vicinity. Because there will be relatively few additional parking spaces for the additional 500,000 square feet of leasable space, demand for parking in the site vicinity will increase. There will also be an increased demand for public transit to the site.

DISTRIBUTION LIST FOR DRAFT PROJECT/ENVIRONMENTAL IMPACT REPORT

A. CITY AGENCIES

Stephen Coyle, Director
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

Richard Mertens
Director of Special Project Planning
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

Juan Loveluck
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

Kristen J. McCormack, Director
Midtown Cultural District Development
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

David Conlon
Acting Commissioner
Boston Water and Sewer Commission
423 Summer Street
Boston, MA

Richard Dimino, Commissioner
Boston Transportation Department
One City Hall Plaza
Boston, MA 02201

Andrew McClurg
Boston Transportation Department
One City Hall Square
Boston, MA 02201

Lorraine Downey, Director
Environmental Department
City of Boston
One City Hall Square
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Denise Breitnecher, Executive Director
Boston Air Pollution Control Commission
One City Hall Square
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Steve Pendery
City Archaeologist
Environmental Department
City of Boston
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Judith McDonough, Executive Director
Boston Landmarks Commission
Boston City Hall
One City Hall Square
Boston, MA 02201

Brian Glascock, Executive Secretary
Boston Conservation Commission
One City Hall Square
Boston, MA 02201

Theodore C. Landmark, Director
Mayor's Office of Jobs and Community Services
43 Hawkins Street
Boston, MA 02114

Bruce P. Rossley, Commissioner
Office of the Arts and Humanities
Boston City Hall
Room 803
One City Hall Square
Boston, MA 02201

Boston City Council
Boston City Hall
One City Hall Square
Boston, MA 02201

Lawrence A. Dwyer, Commissioner
Department of Parks and Recreation
1010 Massachusetts Avenue
Roxbury, MA 02181

Edward Burke
Mayor's Office of Neighborhood Services
Boston City Hall
Room 709A
One City Hall Square
Boston, MA 02201

B. STATE AGENCIES

John DeVillars
Secretary of Environmental Affairs
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202
Attention: Janet McCabe, Assistant Secretary

Executive Office of Communities and Development
State Clearing House
100 Cambridge Street
Boston, Massachusetts 02202

Daniel Greenbaum, Commissioner
Department of Environmental Protection
One Winter Street
Boston, Massachusetts 02108

Cornelius J. O'Leary, Acting Director
Division of Water Pollution Control
Department of Environmental Protection
One Winter Street
Boston, Massachusetts 02108

Department of Environmental Protection
Division of Air Quality Control
One Winter Street
Boston, Massachusetts 02108

Department of Environmental Protection
Metropolitan Boston/Northeast Regional Office
5 Commonwealth Avenue
Boston, Massachusetts 01801

Mr. Frederick Salvucci, Secretary
Executive Office of Transportation and Construction
10 Park Plaza, Room 3510
Boston, Massachusetts 02216-3969

Mr. Thomas F. McLoughlin, Director
Public/Private Development Unit
Massachusetts Department of Public Works
10 Park Plaza, Room 4260
Boston, Massachusetts 02216-3969

Massachusetts Department of Public Works
District Eight
400 D Street
Boston, Massachusetts 02210



Ms. Katrina Belezos
Massachusetts Water Resources Authority
Charlestown Navy Yard
100 First Avenue
Boston, Massachusetts 02129

Dr. Alden Raine, Secretary
Executive Office of Economic Development
One Ashburton Place
Boston, MA

Valerie A. Talmage, Executive Director
Massachusetts Historical Commission
80 Boylston Street
Boston, MA 02116

Ms. Julia O'Brien
Planning Director
Metropolitan District Commission
20 Somerset Street
Boston, MA 02108

David Soule, Executive Director
Metropolitan Area Planning Council
60 Temple Place
Boston, Massachusetts 02111

Jayne Chmielinski, Environmental Coordinator
Massachusetts Bay Transportation Authority
Ten Park Plaza
Boston, MA 02116

C. FEDERAL AGENCIES

Ed Rainer
U.S. Environmental Protection Agency
JFK Building
Boston, MA 02203

D. OTHER INTERESTED PARTIES

Antonia M. Pollack, Executive Director
Boston Preservation Alliance
Old City Hall
45 School Street
Boston, MA 02108

Bethany B. Kendall
President
Downtown Crossing Association
59 Temple Place, Suite 1014
Boston, MA 02111

James J. Sullivan
President
Greater Boston Chamber of Commerce
600 Atlantic Avenue
Boston, MA 02210-2200

Mark Primack, Executive Director
The Boston Greenspace Alliance, Inc.
44 Bromfield Street
Boston, MA 02108

Cynthia Stone, Director
The Old Stone Meeting House
310 Washington Street
Boston, MA 02108

Larry Murray, Executive Director
Midtown Cultural District Task Force
ARTS/Boston, Inc.
306 Newbury Street
Boston, MA 02116

APPENDIX B

NAME OF COMMUNITY GROUP	NUMBER OF MEETINGS	MEETING DATES
Councillor Michael McCormack	1	9/6
Councillor David Scondras	1	10/16
Councillor Christopher Ianella	1	8/11
Councillor Albert O'Neil	1	10/13
Councillor Thomas Menio	1	10/13
MEPA	1	1/5
Midtown Cultural District Task Force	6	1988 10/21 1989 7/6, 7/12, 8/17, 9/19, 9/21
Massachusetts Historic Commission	1	10/16
Boston Preservation Alliance	2	1988 10/13 1989 10/16
Boston Society of Architects	1	10/18
Boston Greenspace Alliance	1	10/16
Parks and Recreation Department	1	9/20
Boston Water and Sewer Comm.	1	9/5
Abbutters (see attached list)	2	1988 10/18 1989 10/17
Boston Fire Department	1	9/27
Mayor's Office of Neighborhood Housing Trust	1	9/14
Mayor's Office of Jobs and Community Services	1	9/15
Neighborhood Housing Trust	1	8/14
Neighborhood Jobs Trust	1	8/14
Unions	2	8/1, 8/7

NAME OF COMMUNITY GROUP	NUMBER OF MEETINGS	MEETING DATES
Neighborhood Jobs Trust	1	8/14
Unions	2	8/1, 8/7
Downtown Crossing Association	4	1988 10/14 1989 4/26, 6/8, 7/11
Public Facilities Department	1	8/10
Boston Transportation Department	3	6/6, 8/18, 10/4
Old South Meeting House	1	1989 10/16
Boston Redevelopment Authority	31	1988 2/9, 3/7, 3/25, 4/22, 11/4, 12/21 1989 1/6, 1/12, 2/16, 3/1, 3/13, 3/21 4/3, 4/4, 4/11, 4/18, 4/24, 4/25, 5/3 5/12, 5/23, 5/26, 6/13, 6/22, 6/27, 7/10 7/19, 7/26, 8/30

LIST OF ABUTTERS

1. Mr. Robert Fleming, The Browne Fund
City Trust Office
Boston City Hall
Boston, MA 02201
725-3414
2. Mr. David Mullen, President
Filene's
426 Washington Street
Boston, MA 02101
357-2041
3. Mr. Elliot J. Stone
Jordan Marsh
450 Washington Street
Boston, MA 02205
357-3166
- Mr. Lenard McQuarrie
Campeau Massachusetts, Inc.
1 Avenue de Lafayette, Suite 3-300
Boston, MA 02111
542-7373
4. Mr. Peter Blampied, President
Boston Five Cent Savings Bank
10 School Street
Boston, MA 02108
742-600 Ext. 115
5. Metropolitan Properties, Inc.
150 Federal Street, 13th Floor
Boston, MA 02110
737-8100
6. Homeowner's Federal & Savings Bank
21 Milk Street
Boston, MA 02109
695-4100
7. Ms. Julie Freeman
31 Milk Street
Boston, MA 02109
8. R.F.E. Management Co.
131 Harvard Street
Brookline, MA 02146
9. Mr. Ron Druker
Jewelers and Diamond Buildings
387 Washington Street
Boston, MA 02108
10. Mr. Robert Lovinger
Old South Management
294 Washington Street
Boston, MA 02108
11. Mr. Norman Levenson, President
896 Beacon Street
Boston, MA 02215
262-3930
12. Mr. Michael Uva, President
Pacifici of Boston
19 Hawley Street
Boston, MA 02110
426-7920

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